

150 Years

Celebrating the past, looking to the future



Met Office

An Executive Agency of the Ministry of Defence
Annual Report and Accounts 2003/4

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Vision

Through unrivalled know-how, to enable individuals, society and enterprises everywhere to make the most of the weather and the natural environment

Goals

- To lead the world in advice on the weather and the natural environment
- To make the Met Office a source of pride to our staff, our owner and the public



Introduction

Unrivalled know-how

This year the Met Office is celebrating its 150th anniversary. Formed in 1854 as a small department within the Board of Trade, it has become Europe's leading National Meteorological Service, with an international reputation for scientific research that is second to none.

Throughout history the weather has had an immense impact on almost every aspect of human endeavour. From its early days, the Met Office's role has centred on saving lives; providing weather advice to mariners was directly linked to the need to prevent loss of lives at sea. The past 150 years have seen many pioneering and courageous events where the weather has played an essential part, such as the conquest of Everest in 1953 by Sir Edmund Hillary and the crucial D-Day landings in 1944. In these and other renowned historical events, weather advice has helped ensure success with minimum loss of life.

Today, wherever you look, people want to know how the weather will affect them – whether they are towing an oil rig into position, planning military operations, managing a funfair, running a supermarket or simply taking the children out for a day at the beach. Governments also need our help with understanding and tackling what is one of the most pressing issues of our day – global warming. At the Met Office we are using our unrivalled know-how to address all these issues and are proud of our position at the heart of society.

This year's *Annual Report and Accounts* looks back over the past financial year and celebrates some of the historic achievements of the past 150 years. This year has been a time of great change for the Met Office. Following the move of our Operations Centre and Headquarters to Exeter, we are now better placed than ever to look forward to further developing our world-class performance and service delivery, enabled by investment in the science that underpins our pre-eminence as a meteorological organisation.

“Throughout history the weather has had an immense impact on almost every aspect of human endeavour.”

From left, Executive Directors: Roger Hunt, John Mitchell, Stephen Penfold, Peter Ewins, Steve Noyes, Philip Mabe.

Introduction from the Chairman of the Met Office Board

It is a pleasure to bring this *Annual Report and Accounts* to you as Chairman of the Met Office Management Board.

It is a particular privilege for me as this is the first *Annual Report* to come from the Met Office's new Operations Centre and Headquarters in Exeter. Our move to Exeter has been a resounding success – we are proud of our new working environment and are working to make the most of the opportunities it offers.

New business prospects are emerging both at home and abroad. I believe that to be successful, an organisation should always play to its strengths. We hold an unrivalled position as a supplier of world-class meteorological information and climate advice, achieved through scientific excellence and by developing good relationships with our customers.

We must strive to keep pace with an increasingly demanding world where competition is the norm and customers expect a high standard of service.

In June 2004 we say farewell to Peter Ewins as the Chief Executive. The Met Office has made outstanding progress under his leadership and I am sure you will join me in thanking him and wish him well for the future.

I look forward to the coming year, which promises to be an exciting and challenging time for the Met Office.

Clay Brendish
Chairman, Met Office Board



1854

The Met Office is born

The Met Office was formed by Captain Robert FitzRoy to provide meteorological and sea-current information to the marine community in an attempt to make sea travel safer. It was originally a small Meteorological Department within the Board of Trade.

Chief Executive’s overview

2003/4 was a year of major achievements for the Met Office, and it is fitting that these achievements should have been realised during the year in which we successfully completed our move to Exeter and are celebrating our 150th anniversary.

With regard to business performance, we met six out of seven of our Key Performance Targets, improving the accuracy of our weather forecasts, the quality of our services and our overall efficiency. At the same time, our financial performance was substantially above expectation and, for the first time in several years, we met our commercial contribution target. Importantly, we also halted the decline in our revenue, and are now well positioned to achieve substantial growth over the next 12 months. While we failed to meet our staff skills index, our performance over several years has shown a welcome and steady increase.

Although overall business performance is an important measure of the success of the Met Office as a Trading Fund, we must never forget that our primary purpose is to provide high-quality weather forecasts and advice on climate and the environment to our many and varied customers.

It is no coincidence that our owner is the Secretary of State for Defence, since the MoD remains our biggest single customer. Last year, a substantial amount of our effort was devoted to supporting our armed forces in Iraq, with members of our Mobile Met. Unit operating at the frontline, ably supported by their colleagues at home. Aviation is also an important part of our business, and I am delighted that we were able to sign a long-term agreement with the Civil Aviation Authority (CAA) to provide essential meteorological services.

We have improved the quality and range of services we provide to all our customers; those in government, industry and commerce and the private citizen. However, I am acutely aware of the need to continue our relentless attack on costs so that we provide even better value for money and make our products and services more affordable.

It is a mark of the success of our relocation programme that most of our customers were unaware of our actual move from Bracknell to Exeter. This move – frequently referred to as the largest single IT-based move ever attempted in Europe – was successfully completed on time and within planned costs. I trust the Met Office’s success will not go unnoticed!

While the move was taking place, the weather in the UK was making its own headlines. In August the 100°F mark was exceeded for the first time since records began. This, of course, prompted the question “Is our climate changing and are we to expect even more extreme weather?” At this stage it is not possible to answer such a question unequivocally but the research conducted by our Hadley Centre for Climate Prediction and Research is undoubtedly helping to throw light on these issues.

Let me also note and welcome the changes to our corporate governance, bringing us into line with best practice. In particular, I welcome our new chairman of the Met Office Board, Clay Brendish, to the team.

This will be my last *Annual Report* as Chief Executive, since I retire on 30 June. It has been an enormous privilege to lead the Met Office over the past seven years, and I am proud of our many achievements over that period. The essential underpinning science has been maintained and developed and we are now firmly in the number one slot for forecasting accuracy. We are also the international benchmark for scientific research into climate change. Over these seven years we have increased the range and quality of our services, improved our efficiency by more than 40 per cent, achieved certification to ISO 9001, and steadily improved on our *Investor in People* performance. I believe the Met Office – Europe’s leading National Met Service – is now in better shape than at any time in its history, and I wish my successor, Dr David Rogers, every success as he takes the Met Office into its next phase of development.

My last word, however, is reserved for the staff of the Met Office. We have achieved a great deal together, but none of this could have been achieved without the dedication and hard work of everyone at ‘the Office’. Many of them have had to cope with moving house and moving their jobs, as well as ensuring business continuity. That they have done this without complaining is testimony to their commitment to both their customers and colleagues. I extend my personal thanks to each and every one of them and wish them and the Met Office every success for the future.

Peter D Ewins
Chief Executive, Met Office

1860
Formation of the first European network
for weather prediction

Highlights of 2003/4

Supported the coalition forces in Iraq – our largest military involvement since the Second World War

Forecast accurately the extreme heatwave in August – some places in the UK exceeded 30 °C for 10 days in a row, attracting huge media interest

Relocated to Exeter on time, within planned costs and with no break in services to our customers

Exceeded the challenging target for improving our Numerical Weather Prediction

Exceeded our financial performance targets, including meeting our Commercial Contribution Target for the first time since 1998/9

Commissioned our new supercomputer, which offers a six-fold increase in power

1866

Establishment of weather observatories

Seven observatories were established, each equipped with continuously recording instruments to measure wind, pressure, temperature and rainfall. This was largely due to the inspiration of Sir Francis Galton.

Concluded our largest ever contract with the Civil Aviation Authority

Increased substantially our research into climate impacts and flooding for the Department for Environment, Food and Rural Affairs

Established a National Met. Programme (NMP) and NMP Commissioning Group, to bring customer focus and efficiency to the 'core' of the organisation

Forecast accurately the cyclone that hit Brazil in March, allowing early warnings to be issued and lives to be saved

Performed the first large ensemble simulation of the sensitivity of the climate system using a comprehensive climate model

1873



International co-operation underway

An international meeting in Vienna resulted in the creation of the International Meteorological Organization.

Management structures

The Met Office’s strategic and operational performance is directed by the Met Office Board and Executive Committee, respectively. Strategic oversight on behalf of our Owner, the Secretary of State for Defence, is provided by the UK Met. Board.

Met Office Board

Following appointment of an external non-executive Chairman in July 2003, the Board has met monthly. Key issues considered were our strategic influences, risks and drivers, and our response to them.

Membership at 31 March 2004:

- Peter Ewins CB FREng, Chief Executive
- Prof. John Mitchell OBE, Chief Scientist
- Roger Hunt, Operations Director
- Steve Noyes, Business Director
- Philip Mabe, Finance Director
- Stephen Penfold, HR Director and Company Secretary (replaced Martin Sands in January 2004)
- Colin Flood, Director of Special Projects (retired September 2003)

External members:

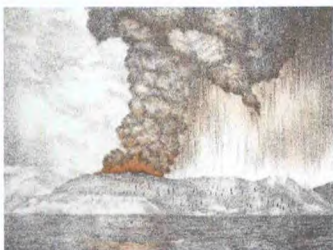
- Clay Brendish CBE, Chairman
- James May
- Prof. Brian Hoskins FRS
- Anabel Gammidge

Résumés of external board members can be found in the appendices at the back of this document.



From left: Non Executive Directors: James May, Brian Hoskins, Anabel Gammidge, Clay Brendish.

1883



Eruption of Krakatoa

Over a century ago, the island volcano of Krakatau (‘Krakatoa’) in Indonesia, exploded with devastating results. The eruption was one of the most catastrophic natural disasters in recorded history, killing more than 36,000 people.

Executive Committee

On 23 February 2004, the Executive Board was superseded by an Executive Committee with an expanded membership. Additional members, drawn from senior management across the Met Office, were appointed for a fixed term to bring broader experience. Meeting monthly, the Committee considers operational issues including risks, opportunities and priorities, and associated resourcing.

Membership at 31 March 2004:

Executive members of the Met Office Board, plus:
Dr David Griggs, Director Climate Research
Ian Carlson, Group Head Finance
Alan Radford, Group Head IT and Service Delivery
Jo Bringham, Head National Met. Programme

UK Met. Board

The UK Met. Board replaced the Defence Met. Board on 1 April 2003¹. Its membership is drawn from key stakeholders across government enabling it to advise the Secretary of State for Defence in his role as owner of the Met Office.

Membership at 31 March 2004:

Ian Andrews CBE TD, Second Permanent Under Secretary, MoD – Chairman
Prof. Sir Keith O’Nions FRS, Chief Scientific Advisor, MoD
Trevor Woolley, Finance Director, MoD
(replaced Colin Balmer in October 2003)
Henry Derwent, Director of Climate Energy and Environmental Risk, Defra
Peter Ewins CB FREng, Chief Executive, Met Office

Non-executive members:

Sir Brian Fender CMG²
David Filkin CBE

Former members:

Clay Brendish
Susan Scholefield, Head of Civil Contingencies Secretariat, Cabinet Office
Roy Griffins, Director General of Civil Aviation, Department for Transport, Local Government and the Regions

NMPCG

The National Met. Programme Commissioning Group (NMPCG)³ represents all customers of the Met Office in endorsing the requirement for the NMP, as well as determining its focus and content. The NMP maintains and develops the underpinning meteorological capability for the UK.

Current membership:

Gwynneth Flower, Chair⁴
Group Captain Nigel Peters, RAF
Phil Hopwood, MoD
Dr Bruce Callander, MoD
David Richardson, Defra
Captain Joe Collins, MCA
(Maritime and Coastguard Agency)
Andrew Lane, BBC

¹ As a consequence of these changes Richard Hadfield and AVM Peter Walker are no longer members of the Board

² Sir Brian Fender has now resigned

³ Formed on 1 April 2004

⁴ Appointed in April 2004

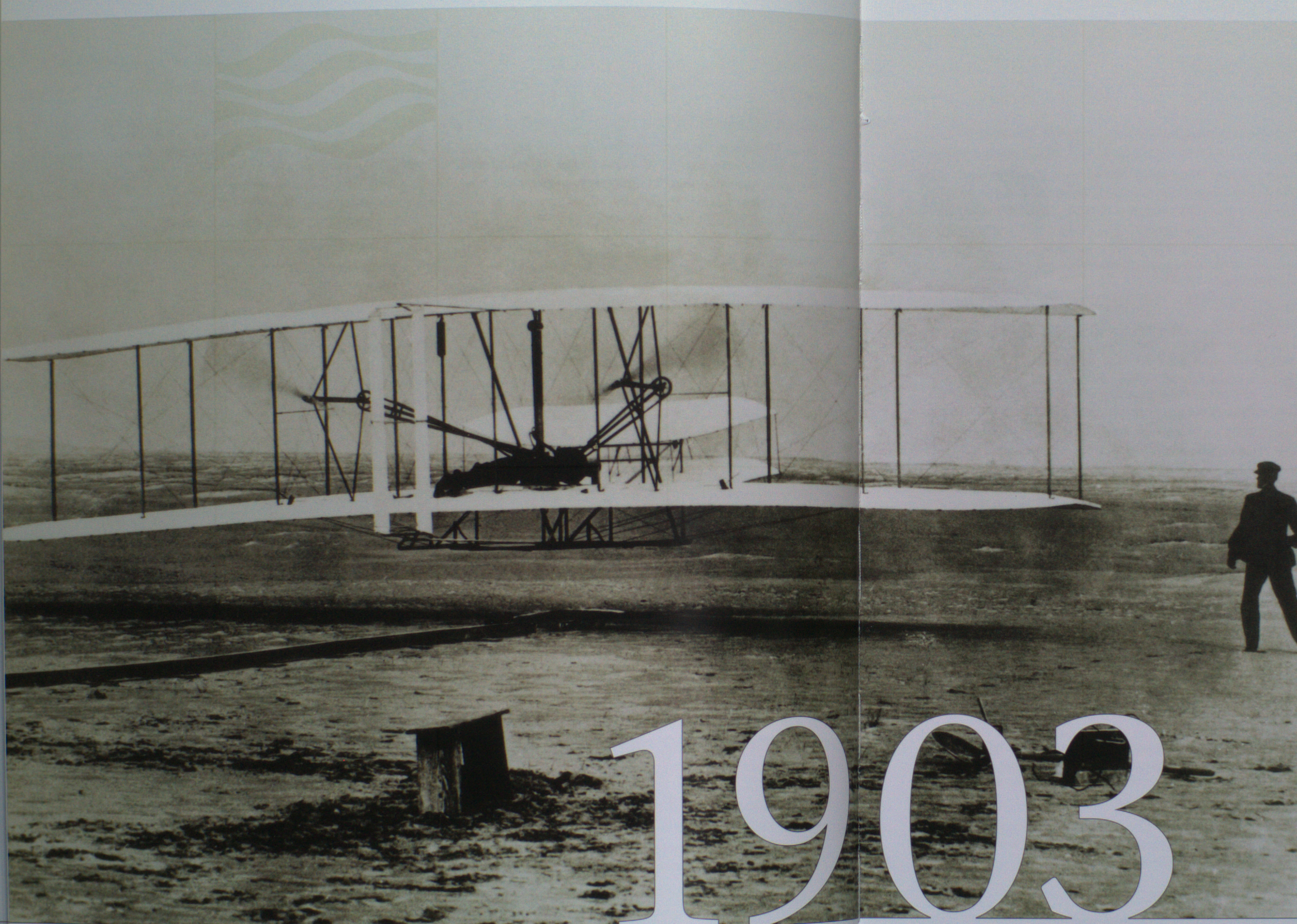
1890



Invention of the radio

100 years of flight

In the 100 years since the Wright Brothers' first flight, aviation and meteorology have both come a long way. Reliable weather forecasting was essential to these early aviators, and in 1912 the Met Office's first outstation was set up at South Farnborough to give advice to pilots. During the First World War, meteorological services were developed separately by different parts of the armed forces. In 1920, these were combined into one organisation under the Air Ministry.



17 December 1903, Kitty Hawk, North Carolina, USA: the world's first powered flight, with Orville Wright at the controls of a 'Wright flyer' and his brother Wilbur running along beside him.

1896



First Met Office HQ

The Met Office moves into its first Headquarters in London.

Business

Growth

The Met Office has a strategy of investment and growth to deliver its aims and vision. The growth element has a number of facets – one of which is growing revenue. We have had a good year, with revenue up by more than £3 million, making this year one of the best since we became a Trading Fund.

In addition to this we have also, for the first time in five years, achieved our target for our Commercial Contribution. It represents the amount our direct business activities contribute to overall funding; exceeding this challenging target is a significant achievement.

These results have been accomplished in the context of the relocation to Exeter and have been achieved by significant advances in meeting customer needs – by being more proactive, flexible and responsive. These improvements to service delivery, combined with the introduction of a new key performance target for growth next year should help us continue to deliver the financial growth elements of our long-term strategy.

A dedicated new business development team

In July 2003 we formed a new Business Development Group tasked with developing innovative products and services. The Group takes a long-term view of business development, exploring new partnerships with other organisations where we can combine our expertise to create entirely new services. It also draws on our scientific and research capabilities to create new business opportunities that will help us grow our revenue.

The Group has already been instrumental in the development of some extremely promising new services that are attracting a great deal of interest from our customers. We are also developing some strategic alliances that have huge potential for product and service development.

Delivering world-class research solutions

In July 2003 we also set up a new Research Business Unit. Our research capabilities are world class and we are able to provide innovative and exceptionally high-quality services to organisations around the world. This is an important area of business growth for the future. One of our early successes was to win a significant extension to our contract with Defra (Department for Environment, Food and Rural Affairs), primarily to carry out research into climate impacts and flooding. This is worth an additional £2 million a year for three years; we are recruiting additional staff to carry out this work.

Business highlights of 2003/4

- We secured a major research contract on climate prediction under the new EU Framework VI arrangements and are the coordinator of a consortium in a contract worth €15 million
- The Iraqi war was our largest commitment to military operations since the Second World War. We are now working on an international project to rebuild the Iraqi Meteorological Organisation
- Our contract with the Civil Aviation Authority, signed in April 2003, is the biggest in our history and is a multi-year deal worth £215 million

1910

Royal Meteorological Society is formed

- Our innovative Health Forecasting project has made its first sale, opening the door to a new source of revenue
- We worked with the Algerian Meteorological Office on a significant disaster mitigation project funded by the World Bank
- Our work to rebuild the Kosovo Meteorological Service at Pristina airport was completed in December 2003, a month ahead of schedule
- We continued to develop our work in the energy sector, expanding our services to National Grid Transco and winning contracts with other gas companies such as Phoenix Energy and Corona Energy
- Our joint venture weatherXchange company, which operates in the weather risk management market, has established itself as one of the leading players in Europe.

New core funding

Fundamental changes to the way in which the underpinning meteorological capability of the Met Office is agreed and funded, came into effect in April 2004. This is set to deliver significant benefits to our customers.

The Met Office's activities can be divided into two categories: that which supports customer-specific services and that which underpins those services and provides the fundamental meteorological capability for the UK. These activities include observing the environment and creating basic forecast information.

In the past this 'core' activity has been funded by a group of 18 government customers (MoD and Civil Departments), offset by revenue from commercial contracts. These customers formed a Core Customer Group (CCG). The Met Office has worked with the CCG over the past year to deliver a significant programme of change, rationalising and improving processes to deliver greater efficiency and responsiveness.

From 1 April 2004, the 'core' activity has been defined within a National Met. Programme (NMP). The CCG has been replaced by an NMP Commissioning Group (NMPCG) and future funding will be provided from a single, central government source. The six members of the NMPCG will represent the interests of our customers in endorsing the priorities and content of the NMP.

The new arrangements remove unnecessary bureaucracy. The NMPCG will have wider engagement with the Met Office and develop greater awareness of our operations and the needs of our customers. Together, we are better placed to develop our organisation as one that delivers greater value for money.

Now that the new arrangements for the NMP are in place, we believe it is time for a fundamental review of the Public Meteorological Service (PMS); the service that delivers basic weather forecasts, free at point of use.

Over the coming year we will be working with PMS stakeholders to drive a programme of review and development. It is envisaged that this will include significant engagement of customer and user groups to take forward the process of reform.

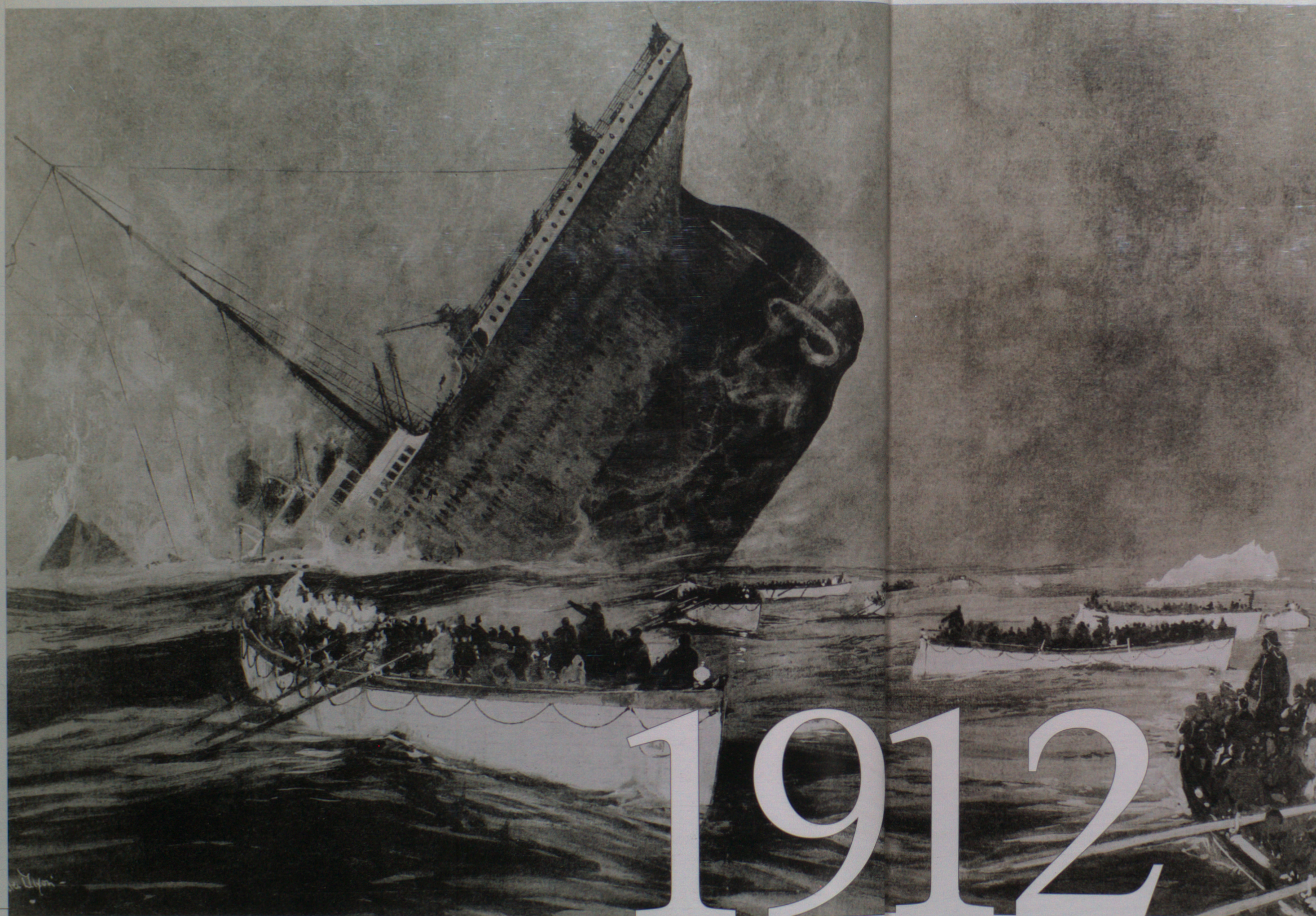


The Iraqi war was our largest commitment to military operations since the second world war.

1911

Rutherford theorises splitting the atom

Ernest Rutherford puts forward the idea that the atom consists of a positively charged nucleus with negatively charged electrons moving around it in different orbits — like planets around the sun.



1912

Sinking of the Titanic

The sinking of the Titanic became known as the "worst disaster that ever befell any vessel" and led to significant research into icebergs in an effort to avoid similar tragedies.

Research at the Met Office's Hadley Centre for Climate Prediction and Research suggests that global warming will eventually reduce the likelihood of iceberg incidents in the North Atlantic. The Greenland ice sheet will take at least 1,000 years to melt, so icebergs will continue to pose a threat to shipping for the foreseeable future.

The 700 survivors watch as the Titanic is engulfed by the icy waters of the Atlantic Ocean.

1914

Numerical weather prediction — the dream begins

LF Richardson first conceived the idea of forecasting using numerical techniques. His calculations by hand took many months and produced awful results. It was not to be until 1965 that numerical forecasts were produced operationally as routine.

Services

Delivering service

Throughout our history, our task has been to deliver exceptional levels of service to our customers – be they Government, the Armed Forces, the general public, aviation, shipping or retail businesses.

Since becoming a Trading Fund in 1996, we have grown into a more commercially aware organisation offering a wider range of products and services to an expanding customer base. Competing in tough, commercial markets demands we are proactive about delivering high-quality services. By understanding our customers’ needs, we can help them achieve their aims – whether these are to keep transport moving during a snow storm, ensure public safety during severe weather or simply to sell more ice-cream during a heatwave.

Getting the message across

Continued improvements to our forecasting capabilities mean that our National Severe Weather Warning Service (NSWWS) is becoming ever more reliable and trusted by government, business and the general public.

Accurate forecasting of severe weather is not enough. It is essential that this information is clearly communicated to the right people at the right time so that appropriate action may be taken. This involves working with our customers, such as local authorities and emergency services, to help them determine what action should be taken to mitigate the impacts of severe weather. For example, on the basis of our early warnings of heavy snow, Borders and Lothian Police hired 30 four-wheel-drive vehicles to help them maintain services.

Since February 2004, all severe weather warnings have been issued from the Operations Centre in Exeter, rather than from regional centres. This has improved the consistency of warnings and the overall value of the service. In addition, developments to this service have enabled us to be more precise with regard to the areas to be affected by severe weather. Our customers know that if they receive a warning, it is highly likely to affect them and they may need to take prompt action.

The graphics used to illustrate the warnings have also been improved, making them easier for our customers to understand and use. The information on our web site, consulted by millions of people during periods of severe weather, has also been improved.

The value of our services is dependent on effective communication and this year has seen significant advances in our communications strategy.

During the heatwave of August 2003, our proactive approach to communicate through the media was a huge success. As a result, our press office had the busiest week in its history, with over 2,000 media enquiries, and an estimated 150 TV and radio interviews given by our staff.

1918

First aviation forecast issued

Cold weather also has a significant impact on society. Over the year we worked with the Faculty of Public Health to help them gain widespread publicity for their Fuel Poverty Campaign. This successfully raised awareness of the dangers to the poor and elderly during cold weather.

We continue, of course, to maintain close links with television and radio networks and have been working with them on initiatives to improve the way weather information is broadcast.

Improving online access

Many of our services are accessible online and we have improved delivery through a significant upgrade in our bandwidth, from 8 to 30 Mb per second. We also began a review of our web site that will deliver further significant improvements to design and content.

This year we published the catalogue of the National Meteorological Library and Archive online, enabling easy access to vital research information for our customers in the scientific and academic communities.

Supporting our armed forces in Iraq

In April 2003, the UK's Armed Forces were already in action in Iraq. At the height of the conflict there were 23 Met Office staff in six teams on duty in the Gulf and a team stationed at the Permanent Joint Headquarters in Northwood, Middlesex. These teams were supported by headquarters staff, providing central back-up, including forecasts from a weather model covering the entire conflict area.

We had already been closely involved in the planning stages of the conflict, advising the MoD on the climate of the region and how it could affect operations. At the outset of operations, there was concern about the potential use of nuclear, biological and chemical (NBC) weapons. We were able to advise the MoD in assessing how the weather might affect an NBC scenario.

We also worked closely with the US coalition partners to create a consistent forecast for the operational area. This was a vital requirement as far as the armed forces were concerned and an important factor in coordinating military activity.

The Commander in Chief RAF Strike Command paid tribute to the work of all Met Office staff involved, and commented that forecasts throughout the four weeks of conflict had been "spot on".

From the end of formal hostilities, the Met Office team has remained in Iraq to provide continuing support to coalition forces.

Helping prevent accidents and ill health

The weather has a significant impact on health. As part of our drive to develop new services, we have become more proactive about the kind of advice we can provide. Our aim is to inform people of the effect of the weather and what action they should take to manage risk.

We have already run a successful project helping health authorities to use weather forecasts to predict their workload. For example, when planning ahead it can help to know that asthma is increased by thunderstorms or that respiratory admissions are likely to rise following severely unsettled periods.

During the heatwave in August 2003, we alerted hospital trusts about when and where to expect a rise in emergency admissions. We were also able to assist organisations such as Help the Aged issue guidance to help prevent heat exhaustion, strokes and heart attacks.

In February, we received agreement in principle for funding of the next stage of our Health Forecasting project. This will explore the benefits of hospital admissions forecasts more fully and develop prototype chronic disease prevention forecasts.

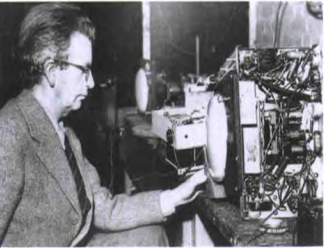
This project is moving from its development stage to become a strategic service that we can provide to organisations both here in the UK and abroad.

1922



First radio forecast
BBC Radio began
broadcasting weather
forecasts.

1924



First television
transmission
John Logie Baird made
the first television
transmission in 1924.



The Met Office is leading a Defra-funded project that aims to improve our understanding of coastal waters and help in the design of coastal defences.

Harnessing new technology

The Met Office harnesses new technology to improve performance and deliver services to customers. By giving our customers new ways to use and interact with the information we provide, we are able to increase significantly the value of our services.

For example, our new EnviroMet service is a powerful, easy-to-use web-based service that enables customers to react quickly to hazardous weather within catchment areas. Its specialised GIS (geographical information system) tools allow users to analyse real-time weather and hydrological information and to take prompt and effective action.

One use of this system is to enable local authorities to better manage flood risks. For example, if a council knows that the combination of forecast heavy rainfall and existing conditions mean a particular area is likely to flood, prompt action such as clearing debris from drains and culverts can help reduce flood damage.

EnviroMet gives access to high-resolution radar data, highlighting storms that might be missed by a rain-gauge network alone and allowing customers to improve their water resource modelling and management systems.

Working in partnership

Flooding has caused significant damage and disruption in various parts of the UK over recent years, and we have been working hard, in collaboration with the Environment Agency (EA), to improve forecasts.

In 2000 we began a joint project with the EA to combine both rain-gauge and radar data to improve accuracy. The work has continued this year and will be completed in 2004.

In a related project, planning permission has now been obtained for a new weather radar system near Maidstone in Kent. This is funded by the EA in conjunction with the Met Office and will improve warnings for south-east England.

Heavy rain in early February, combined with melting snow, resulted in flooding in North Wales and Cumbria. Capel Curig in North Wales recorded 260 mm of rain in 48 hours. We forecast the heavy rain in advance and helped provide warnings of the risk of flooding.

1926

Jet stream discovered

Although not confirmed until 1940, it was in 1926 that a jet stream was first discovered — a narrow band of very strong air currents encircling the globe several miles above Earth.

1936

First live radio weather forecasts

BBC Radio forecasts the weather live.

Improving services to aviation

This year we signed our biggest ever contract, worth £215 million over several years, with the Civil Aviation Authority.

We worked closely with the National Air Traffic Control Service (NATS) to help them cope with fluctuations in workload caused by weather conditions over the North Atlantic. Flight paths between Europe and North America vary depending on the winds, so rather than simply forecasting the weather for NATS, we have introduced a service to predict the optimum flight routes five days in advance. This helps them plan their workload and manage resources more efficiently.

New techniques to protect shipping

The Met Office is leading a Defra-funded project trialling a new technique that could significantly improve information on UK inshore waters.

The Wavenet project uses land-based high-frequency radar, rather than buoys, to measure offshore currents, waves and surface winds. The radar is able to cover a greater range than a fixed buoy and, being land-based, is also easier to maintain and therefore more reliable.

The information gathered from the radar will benefit the understanding of our coastal waters and help in the design of coastal defences.

Serving the international community

The Met Office is a prominent member of the World Meteorological Organization (WMO), which held its 14th congress this year. Our Chief Executive Peter Ewins was instrumental in helping the WMO develop its long-term strategic plan for 2004 to 2011. He was also re-elected to the Executive Council of the WMO.

The Met Office is part of the ad-hoc Group of Earth Observations (GEO), set up following the G7 summit in Evian in June. The GEO aims to pull together information from a variety of observing systems, including environmental and meteorological data, in an effort to determine what is happening to the Earth's climate.

Helping UK PLC do business

Using our knowledge of the weather, we help UK businesses to improve their performance, for example through better planning, delivery and operations.

Our forecasts for the August heatwave helped the electricity industry respond to greater demand for electricity from consumers. By predicting the surge in the use of fans and air-conditioning units, the industry was able to plan its generation capacity accordingly.

At the same time, Sainsbury responded to our advice and adjusted their stocks of key hot weather goods. The plan worked, as the supermarket's sales of lettuces, hamburgers and sun-cream rocketed.

1940

Enigma code cracked

By identifying coded weather information and comparing it to known conditions, cryptologists cracked the crucial Enigma code during WWII.



The weather forecast that changed history

In the late spring of 1944, it was the job of our senior meteorologists to advise the Allied Supreme Commander, General Eisenhower, when to launch the invasion of mainland Europe.

Strict minimum weather conditions were established: bomber and fighter aircraft each required different cloud conditions; gliders needed a clear moonlit night; the Army needed firm dry ground; the Navy needed light winds and good visibility.

Dr Stagg of the British Meteorological Office identified a narrow weather window that would allow the first critical assaults to be made on 6 June 1944.

6 June 1944, France: American troop reinforcements wade ashore from landing craft onto the Normandy beaches during the D-Day invasion of France.

1942

Meteorological Research Flight is formed

Royal Air Force aircraft are used by the Met Office to obtain detailed measurements in many atmospheric categories.

Forecasting and production

Getting the forecast right

The core service of the Met Office is forecasting the weather. It is what we are known for and is the foundation of many of our other services.

Our customers expect us to get the weather forecasts right. More than that, they want the accuracy, detail and timeliness of our forecasts to help them improve their planning and decision-making.

Saving lives

Our forecasts are more accurate than ever before. In fact, today's three-day forecast is as accurate as a one-day forecast was 25 years ago.

Improved accuracy leads to lives and property being saved when weather is severe. This was poignantly demonstrated in a BBC documentary marking the 50th anniversary of the 1953 storm, which caused severe flooding and massive loss of life across Holland and eastern England.

For the BBC programme, we used our current forecast system to re-run the forecast for that day. If we had had today's technology at the time, we would have predicted the strong winds and huge tidal surge that led to the devastation. Today's accurate forecasts and modern-day communications help ensure that such loss of life would be very unlikely if similar events occurred again.

Better use of observations

Observations help us determine the start position for our forecasts. With a more accurate starting point we achieve better forecasts. At present, Met Office forecasts incorporate observations using a technique known as 3D-VAR. This provides a best fit (in the three space dimensions) between observations and the forecast model. A natural extension of the scheme is 4D-VAR, which takes account of the fourth dimension – time. We have now developed a 4D-VAR scheme that will be introduced in 2004. Tests already show that it makes much better use of satellite data. Further developments, in the longer term, will also improve our use of cloud and rainfall observations.

This year we have started a complete review of all our observing systems. We will redesign our observing network to get the optimum mix of space- and land-based observing systems to deliver improved value for money.

Our earlier investment in the automation of observations has helped us to reduce costs, but many of these systems are becoming obsolete and will be replaced by cheaper, more-flexible and reliable instruments.

1949

First TV weather forecast

1950



World Meteorological
Organization established

New satellite systems continue to deliver improvements to our forecasting capabilities, including the first of the Meteosat second-generation satellites that was launched in August 2002 and which is now operational.

This year the Met Office also played a leading role in a new 10-year international research experiment, called The North Atlantic THORPEX Regional Campaign, which could radically change the way the weather is observed and forecast.

By enabling forecasters to target observations on highly specific geographical areas, THORPEX hopes to improve the accuracy of forecasts – especially of weather systems that have traditionally been very difficult to track. The campaign is a European, American and Canadian joint project in which the Met Office provides the lead operations centre.

Communicating confidence

We are poised to take another huge step forward in improving weather-related decision-making for our customers.

Ensemble techniques help us to quantify the uncertainty present in any forecast. Instead of a single forecast, we generate a number of forecasts, each from slightly different starting conditions. The complete set of forecasts, or ‘ensemble’, enables us to assign a probability that a certain event will occur.

Customers can use this information to help their decision-making process. For example, the ensemble system might predict a one in five chance of a storm and high seas off the north of Scotland. If marine customers are planning to tow an oil rig into position on that day, they can make a decision based on the risks involved. Losing an oil rig is an expensive proposition, so they might choose to wait for a weather window if we were forecasting a 20 per cent chance of a storm. A golfer wondering whether to spend his afternoon on the links, however, might be willing to take a chance on getting wet if there is a 20 per cent probability of rain. Knowing and understanding the odds enables our customers to make more-informed decisions about the situations they face.

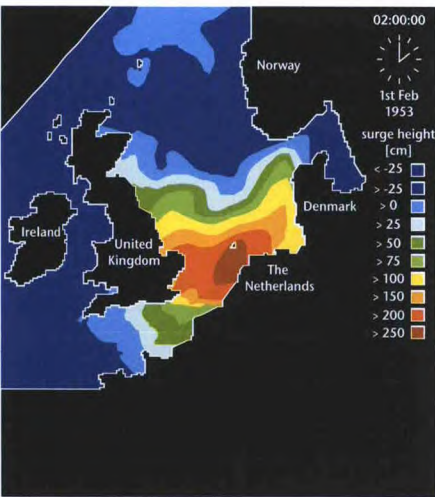
New supercomputer increases capability

As a science and research organisation, powerful computers are essential to our work.

To expand our capabilities and enable new, more-accurate methods of forecasting – such as the use of 4D-VAR and ensembles – we have invested in a new NEC SX6 supercomputer which gives us six times the processing power of our previous supercomputer.

The system became fully operational at the end of April 2004 and our plan is to double the computing power again over the coming 12 months via an upgrade to the NEC. This will give us 12.5 times the computing power that we had in Bracknell.

The new supercomputer will also be used to improve our climate prediction capability. The Met Office’s Hadley Centre for Climate Prediction and Research provides advice to Government on climate change – one of the more controversial issues of our time. The work we do here will help Government, business and society as a whole make better-informed decisions on the control of harmful emissions and how to adapt to the effects of climate change.

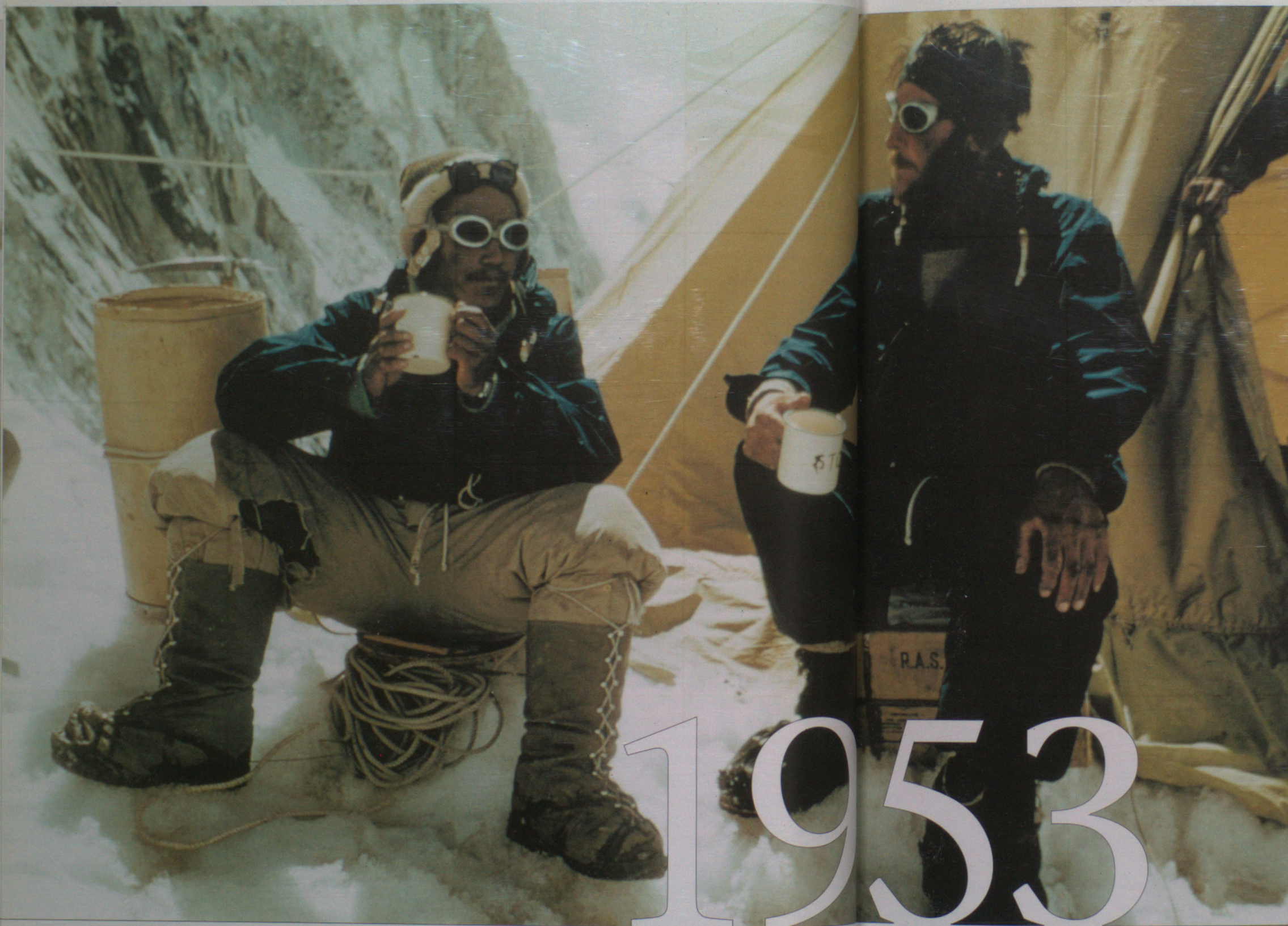


Graphic showing the tidal surge in the North Sea at its height during the 1953 storm. Courtesy of WL/Delft Hydraulics (Delft, The Netherlands); from its 1953 storm surge model simulation (DCSM, 1989).

1952

Great London Smog

The London smog of 1952 was directly responsible for the death of thousands of Londoners and led to the Government passing the first in a series of Clean Air Acts.



An historic achievement

In May 1953, Sir Edmund Hillary led an expedition that successfully conquered Mount Everest. Hillary took his own meteorologist, George Band, along with him. Instead of the Met Office supplying forecasts to the climbers, Band sent us data on the conditions encountered during the historic climb. His information was sent by letter — and took three weeks to arrive.

Things have changed a lot since the days of Hillary's expedition, of course. Now, whenever ascents take place, we are able to supply specialist, up-to-the-minute weather advice to climbers by satellite phone.

Tenzing Norgay and Edmund Hillary drink tea in the Western Cwm after their successful ascent of Mount Everest.

1953

East coast floods

Catastrophic east coast flooding led to the formation of the Met Office's Storm Tide Warning Service.

Realignment

Looking to the future

As we celebrate 150 years of service we are also looking to the future. Our new Headquarters and Operations Centre in Exeter gives us a sound base and solid infrastructure from which we can improve and expand our services. We have invested in leading-edge equipment, and we continue to invest in the recruitment of new talent and in the training and development of our people. We have also started to re-engineer our production process so that we can deliver significant performance improvements and efficiency.

A new start

This year we successfully completed the move to our new Operations Centre and Headquarters in Exeter. This relocation was a logistical and technical triumph and, for our customers, there was little or no disruption to service.

Maintaining business continuity while moving our people, more than 100 separate IT systems and our entire business infrastructure, required meticulous planning, a lot of hard work and a huge amount of commitment and dedication from everyone involved.

A model move

The move was completed within three years of making the decision to relocate, which in itself was a remarkable achievement. The new building was finished and the entire relocation completed both on time and within planned costs. We also exceeded our target for staff retention: we had expected 70 per cent of our people to move with us but in fact 82 per cent made the transfer to Exeter.

The exercise was so successful it has been hailed as a model for public sector relocation – one that other organisations, under pressure to move out of expensive premises in London and the south-east, can follow.

On time and within planned costs

We began moving into our new buildings during Summer 2003, while construction work continued. IT operations were switched over on 23 July 2003, with two control teams running in tandem at Bracknell and Exeter to ensure a seamless service. Similarly, we had a short period of dual running when the forecasting element of the Operations Centre was switched over on 28 August 2003.

On 18 December 2003, the building was officially handed over by the contractor, Stratus consortium, to Ivor Caplin MP, the Under Secretary of State for Defence, on behalf of the Secretary of State for Defence.

1954



First live TV forecast

The first live broadcast on BBC television was presented by George Cowling.

Our working environment

The building provides a modern working environment and brings all our headquarter activities under one roof. These include a media centre, the National Meteorological Library, the Met Office College, conference facilities, our Operations Centre and twin computer halls.

It is also an environmentally friendly building. Many of the construction materials came from sustainable sources and we are able to recycle energy and consumable materials, such as wastewater and rainwater. A combined heat and power plant reduces our use of non-renewable energy.

The Building Research Establishment (BRE) has developed an assessment method (BREEAM) to evaluate the environmental impact of new buildings. The Met Office is delighted to have achieved a rating of ‘Excellent’ for its new Headquarters, against the 2001 standard.

We are now better placed to provide a quality service to our customers while continuing to improve and modernise every aspect of our operations. A new, faster Local Area Network (LAN) and modern telecoms system will improve productivity and performance.

Our new environment has encouraged more interaction between staff and gives us a platform on which to develop more-efficient working practices.

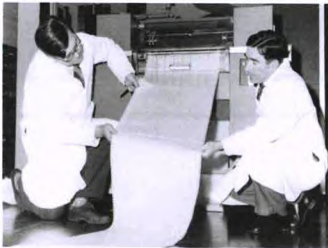
An award-winning project

The relocation has resulted in several awards, including the Association of Commuter Transport Public Sector Employer Award and a national gold award under the Considerate Contractor Award scheme. These recognise our efforts to minimise the impact of the construction work on the local community.



Met Office Headquarters and Operations Centre, Exeter.

1959



First Met Office electronic computer

The Met Office’s first electronic computer was installed — a Ferranti Mercury computer.



We are building relationships with Local Education Authorities to help teach pupils about their environment.

Reaching out to the local community

We recognise the importance of helping the wider community with charitable and educational projects. This year, for example, we sponsored a series of British Association science and public affairs meetings.

We naturally want to build close links with the community in our new home, so this year we worked with the Devon Education Business Partnership and the Local Education Authority for Devon on a scheme to provide weather observation equipment and training in four secondary schools. Recognising the close relationship between tourism and weather, we sponsored the 2003 South West Tourism Excellence Awards – specifically the accessibility category.

In the coming year we will be supporting a charitable trust set up by Gemini FM, a local radio station in Devon. We will also be sponsoring a series of scientific lectures and informal meetings at Exeter University.

Improving key systems

Providing customers with timely and accurate weather information involves moving and manipulating huge amounts of data. This flow of data, both information coming into the Met Office and our services going out to customers, is controlled by switching systems.

This year, we have installed a new purpose-built communication system, which moves data faster and provides greater resilience than our previous system. It gives us a platform for continued expansion and will help us reduce operational costs.

1962/3



Coldest winter in England for 200 years

Developing our people

Improving our staff’s knowledge and skill is a cornerstone of our future growth and we are committed to providing training, development and help towards achieving the relevant professional qualifications.

In February 2004, the Met Office retained its *Investor in People* status following external assessment. The assessors were impressed with the responses from our staff, acknowledging that this was particularly notable for a business undergoing such a major change as relocation.

To mark the 150th anniversary of the Met Office and to highlight our scientific and technical excellence, we are creating a new Fellows’ scheme to replace the Individual Merit promotion. The new scheme will give staff the opportunity to apply for the title of ‘Fellow’ based on their world-leading scientific and technical contribution. In addition, Honorary Fellows will be appointed from external academic and scientific bodies.

Staff numbers reduced during the year from 2,100 to around 1,850, in line with our plans. This was due to efficiency improvements and new technology.

Staff recruited during 2003/4

	Male	Female	Total
Total	56	34	90

Staff are recruited under the terms of the Civil Service Commissioners’ Recruitment Code. Individual appointments are made on the basis of fair and open competition. We have made six permitted exceptions to the code this year. This is higher than usual, but was agreed in advance with the Civil Service Commissioners to assist with specific requirements arising from relocation.

Rethinking the way we work

Our customers increasingly need us to be fast, flexible and able to adapt rapidly to their changing requirements. To meet their needs, to ensure that we continue to improve the quality of our services and to maintain our reputation for innovation and creativity, we need to rethink the way we work.

Many of our processes and systems have evolved over time. To make sure we improve performance and provide value for money, it’s time to look at all these ways of working – and rebuild them from the ground up.

On this basis we are starting a large scale re-engineering project. The aim is to make us faster to market, more streamlined, more responsive and proactive – and more closely aligned to what our customers need.

In addition, 2003 saw a merging of our IT Operations Centre and the National Meteorological Centre.

1965



Operational numerical forecasts begin

Routine operational numerical forecasts began on 2 November 1965, following more than 10 years of research. The computers used at the time were slower than today’s average desktop pc.



Champions

During the 1960s, weather radar was used for the first time, the first meteorological satellite was launched, and the Met Office's first electronic computer was installed at Bracknell. And of course, on the football field, England triumphed in the World Cup in front of 96,924 spectators at Wembley Stadium and many more watching on television.

30 July 1966, Wembley Stadium, UK: World Cup Final 1966; England 4, West Germany 2. England Captain Bobby Moore holds up the Jules Rimet World Cup trophy as he sits on the shoulders of his team mates after the match.

Research, science and technology

Predicting the future

Scientific research and the use of technology are vital aspects of the work of the Met Office. We have established a world-class reputation for the quality of our research and are renowned for our ability to apply our knowledge to provide solutions to the weather and climate challenges faced by our customers.

We are constantly seeking to advance the science of weather prediction – through the use of new observational techniques, developments in Numerical Weather Prediction (NWP) and a range of related scientific disciplines.

The Met Office’s Hadley Centre for Climate Prediction and Research provides a focus in the United Kingdom for the scientific issues associated with climate change. Our scientists also carry out research into a range of factors connected with the oceans, hydrology, and the environmental sciences.

The technology we use encompasses everything from weather buoys, satellites and aircraft to the supercomputers that are an integral part of our forecasting and climate activities. Advancing the development and use of technology is fundamental to improving our core services, and enables the development of new products and services that contribute to the growth of the business.

Pure research is also a service – and we are increasingly able to bring revenue into the Met Office through this route. A good example of this area of business is the three-year contract with Defra that we were awarded this year, to research into the impact of climate change on extremes, particularly flooding.

Science can add to our competitiveness but it is also, of course, very much a collaborative activity. We work closely with colleagues around the world to progress the science and understanding of the weather, climate and environment. We are also a prominent partner in many EU-funded research projects.

Our science at a glance

Instead of producing a separate science and technical review this year, we have chosen to present some of these highlights here within the *Annual Report and Accounts*. The aim of this chapter is to present a non-technical overview of our scientific work.

1973

European Centre for Medium-range Weather Forecasts

The Met Office was a founding member of the European Centre for Medium-range Weather Forecasts. The centre is located near Reading, UK.

An additional publication, *Environmental Prediction: Science and Technology in the Met Office*, is published alongside this *Annual Report and Accounts* to give further details of some of the most important science and research work taking place at the Met Office. We have avoided using technical jargon within this document, as we want to make it readable and accessible to a wide audience. For a more in-depth scientific treatment, please see our web site, where many of these issues and developments are discussed in much more depth.

World-class Numerical Weather Prediction

The principal reason for the improvements made in the accuracy of our forecasts is the increasing effectiveness and reliability of Numerical Weather Prediction (NWP). NWP is based on the use of complex mathematical equations and followed the pioneering work carried out by L.F. Richardson, first published in 1922.

In those days, it was impossible to carry out the calculations needed quickly enough to generate a useable forecast. Today's computers change all that and NWP is now central to the science of weather forecasting and underpins all our operations.

We are proud of the fact that the Met Office is a world-leading centre for NWP. This is a great achievement and one that we will build on well into the future.

North Atlantic and European Model

The power of the supercomputer ultimately constrains the size of the forecast area and the level of detail that can be represented in the computer models used for Numerical Weather Prediction. The more powerful NEC SX6 supercomputer will allow the domain of the existing UK model to be extended in order to cover a substantial part of the North Atlantic and much of Europe. The benefit of this increased area is a more-accurate representation of the evolving Atlantic systems, which will provide improved forecasting of severe weather events as those systems reach the UK and Europe. This new model configuration has undergone trials and will become operational in 2004.

New research aircraft

The new research aircraft, a BAE 146-301, has completed an extensive conversion programme by BAE Systems. The aircraft facility is jointly run by the Met Office and the Natural Environment Research Council for exploitation by both the Met Office and University science communities. This arrangement enhances collaboration and provides more resources for developing new instrumentation. A broad range of experiments is planned for the next few years. The resulting measurements will provide the basic data for developing and testing improved ways of representing cloud and precipitation in our forecast models.



Our new research aircraft, a BAE 146-301, run jointly by the Met Office and the Natural Environment Research Council. Its air-borne observations will help us improve and test the way our scientific models represent cloud and precipitation.

1977



Launch of Meteosat 1

The European weather satellite was a collaborative project, making a picture of the Earth's weather available to forecasters. Satellite-based instrumentation will, in time, provide a major input to the numerical models.



We have developed a forecast model to help improve short-range forecasts of heavy rain and thunderstorms down to a resolution of about 1 km.

Convective scale NWP

Heavy thunderstorms can lead to localised flash flooding, which may be dangerous and costly. They are very difficult to predict and, currently, our Numerical Weather Prediction models lack the detail to represent them explicitly. In future we hope to be able to produce forecasts by simulating the atmosphere in much more detail; we are now building the tools to enable us to do this. We have developed a model able to resolve scales of around 1 km, with the primary aim of improving short-range forecasts of heavy rain, especially associated with thunderstorms. A substantial number of case studies have now been simulated using this configuration, and in the vast majority of cases these prove much better than our operational models, though at the cost of considerably more computer power.

A unified view of Europe’s weather

We are currently trialling a system that will combine forecast information from countries across Europe into a single display of Severe Weather Warnings for the continent.

The system will be easily accessible through the internet and will present data in a form readily understood across Europe by using colour coding to depict the severity of each event.

The European Multiservice Meteorological Awareness (EMMA) system is sponsored by the Network of European Meteorological Services (EUMETNET). It will be trialled at the Met Office as proof of concept during the period March to June 2004.

Predicting water flow

Building on a system already in operation since late 2002, we are able to provide real-time soil moisture and run-off diagnosis. The new system uses computer models with terrain elevation data at 1 km resolution to predict the route the water will follow. It will be an invaluable tool for helping to predict flooding.

Ocean observations

We are part of an international effort to improve ocean observations and are coordinating the UK contribution to Argo – a scheme to deploy 3,000 free-drifting profiling floats to measure the temperature and salinity of the upper 2,000 m of the ocean. The array of buoys is due to be fully in place by 2006. Over the past three years, over 100 UK floats have been deployed in support of the Argo programme. This will improve not only weather forecasts but also climate predictions.

Tracking airborne pollutants

Airborne pollutants transported in the atmosphere are a significant cause of environmental damage, health problems and climate change. We are able to better understand and predict the movement of these pollutants using the Met Office’s dispersion model NAME (Nuclear Accident Model).

Our focus this year has been on the development of the next major version – NAME III. The model integrates both short- and long-range capabilities, which have traditionally been treated separately.

We can now also run the NAME model ‘backwards’ in time, to create detailed maps of the origin of air reaching any given location. This is extremely useful for identifying the source of pollution.

Improved decision-making for the armed forces

We are currently working on the development of a new electro-optic Tactical Decision Aid (TDA) called Neon. It will provide a significant enhancement to the range of TDAs we can provide for the armed forces.

Neon works by taking information on temperature and atmospheric transmittance and combining them into a hybrid model that can then be viewed by the operator. Neon also allows us to deliver UK thermal crossover maps to aid pilot navigation and target detection.

Upgrading the observations network

Data from the first tropospheric wind profiler in the UK, based on South Uist in the Hebrides, came on stream in early 2004. This profiler gives continuous wind speed and direction information at up to 18 km with a vertical resolution of 500 m.

Considerable progress was made in identifying sites and preparing planning applications for new weather radar systems – two in Scotland (working with Scottish Power and the Scottish Executive) and two in southern England (working with the Environment Agency). In March, planning permission was granted for a site in Kent.

Climate change – helping people plan for the future

Predictions of future climate change are a vital input to the strategic plans made by governments and many private companies. In the United Kingdom, for example, the Hadley Centre’s predictions provide the Government with a scientific foundation on which to base its policies on emission reductions and the building of defences to protect against the impacts of climate change.

The main tools we use to predict climate change are computer models. Over the past four years we have been developing the new Hadley Centre Global Earth system Model (HadGEM1). Increasingly, models such as HadGEM1 need to include multiple submodels – atmosphere, ocean, sea ice, land surface, terrestrial and ocean biosphere and chemistry – each of which can interact and feed back with other components and hence make significant changes to the predictions.

The HadGEM1 development project was a large, interdisciplinary coordinated team effort that drew on a wide range of scientific and technical expertise to build a successful model.



1979

Weather radar network established

The weather radar network was established in the United Kingdom, providing real-time rainfall information to forecasters.



The year 2003 was the third warmest globally in the 143-year global temperature record maintained by the Hadley Centre.

Will the Gulf Stream change?

Improvements to the ocean component of the new Hadley Centre climate model will allow a better understanding of deep ocean flows that are an important part of the large scale 'conveyor belt' circulation.

A key question in climate research concerns the stability of the Atlantic Ocean circulation, a system of large-scale currents including the Gulf Stream, which carries heat from the tropics to higher latitudes. There is the possibility that the conveyor belt could slow or even stop completely in future. A complete shutdown, while unlikely, would have huge impacts on the climate in Europe and beyond.

Recent observations have shown a freshening of the seawater deep in the north-west Atlantic, and this has been interpreted by some as an early sign of a weakening conveyor belt. Using the climate model we have shown that the observations are in fact consistent with a slight strengthening of the conveyor belt since the 1960s.

Nevertheless, the model predicts that in future the conveyor belt will weaken somewhat as a result of global warming, although the direct warming due to greenhouse gases overcomes the cooling due to the weakening of the conveyor belt, leading to net warming over Western Europe.

Monitoring climate trends

The year 2003 was the third warmest globally in the 143-year global temperature record maintained by the Hadley Centre. It was 0.49 °C above the 1961–90 average. Only 1998 and 2002 were warmer, at 0.54 and 0.50 °C above normal, respectively.

All of the ten warmest years globally since 1861 have occurred in the 13 years since 1990, including each year since 1997.

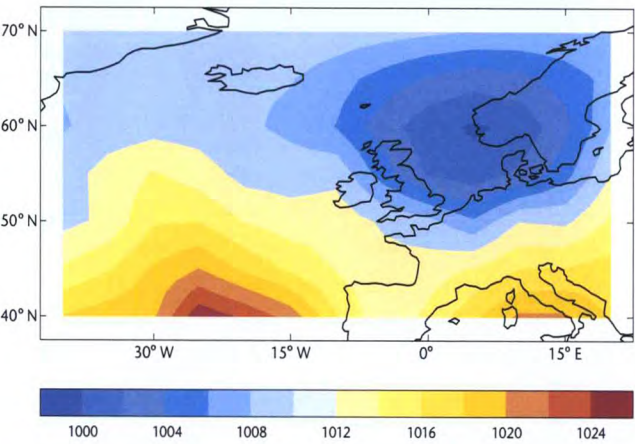
Besides being a warm year, 2003 was also a dry one, the annual England and Wales precipitation total being the lowest since 1975. August 2003 was notable for the highest-ever temperature recorded in the United Kingdom: 38.5 °C (over 101°F) in Kent on 10 August.

European collaboration

We are partners in a European project studying European and North Atlantic climate variability (a project known as EMULATE). For EMULATE we have created daily maps, going back to 1850, of atmospheric pressure – and thus weather patterns – over the North Atlantic and Europe.

The illustration (below) shows the pattern for 1 August 1854, the day Admiral FitzRoy formed the Meteorological Department at the Board of Trade – the direct predecessor of the Met Office. With low pressure over southern Britain, dull, wet or thundery weather would be expected.

The EMULATE data is being used to study pressure and wind patterns through the years over Europe and the North Atlantic and relate them to sea surface temperature patterns as well as human influences on the climate. The related impacts on droughts, floods and extreme heat and cold are also being studied.



Mean sea level pressure (hPa) on 1 August 1854, the day the Met Office was founded.

Met Office guides space collaboration

Four leading UK government agencies, led by the Met Office, have joined forces to help fund the new ocean-observing satellite known as Jason-2. Future climate patterns will depend heavily on how the atmosphere and oceans interact. Jason-2 will help meteorological and environmental organisations to monitor these patterns.

New climate prediction experiment

The Met Office’s world-renowned climate prediction model is available to internet users around the world as part of new international climate experiment, climateprediction.net. Launched in September 2003 and organised by Oxford University, the innovative project aims to allow computer users anywhere in the world to participate in climate prediction work.

1982

Forecasts go global

The numerical model was extended to cover the southern hemisphere, giving surprisingly good results despite the limited number of observations.



Creation of the internet

The internet has evolved over many years to become the extensive network of information that we know today. 1983 was a real turning point for this new technology — the Internet Activities Board was created, TCP/IP became the core internet protocol, and the University of Wisconsin created the Domain Name System (DNS).

The first Met Office web site was created in October 1995, when the internet was still in its infancy. Today, our web site provides easy access to an extensive range of information on weather and climate. Our homepage typically receives between 300,000 to 500,000 page impressions per day. At times of severe weather and during peak holiday periods, this figure can increase to around a million page impressions per day.

The internet aids students with computer-based learning.

1984

Met Office becomes World Area Forecasting Centre

The Met Office became one of two world centres for civil aviation, providing weather advice to international airlines.

Performance

Key Performance Targets 2003/4

Each year, the Chief Executive and the Under Secretary of State for Defence agree our key performance targets (KPTs). These targets are the means of measuring the performance of our business and are intended to be challenging but achievable. The table on page 42 shows the values of the targets set and the results for 2003/4. This year has been particularly successful as we have met six out of seven of our key targets.

Relocation – Operational at Exeter

The relocation of our HQ operation from Bracknell to Exeter has been a major success. The key target of delivering our central forecast operations from Exeter by 30 September 2003 was achieved over one month ahead of plan.

Forecast accuracy

The accuracy of our published forecasts is heavily dependent on the accuracy of our NWP models, which are run twice a day on a global scale and four times on a local scale for the UK. Our NWP Index monitors this performance on a rolling three-year basis.

During 2003/4, the NWP Index continued to increase even though model changes were suspended due to relocation. This target has been exceeded.

Quality

The Service Quality Index covers a representative range of services provided to defence, civil aviation, public and commercial users. Each year, the target level is derived from specific customer requirements for the accuracy and timeliness of these services.

In 2003/4 Terminal Aerodrome Forecasts for both civil and defence aviation performed particularly well with the OpenRoad service also well above target. The overall service quality target was met comfortably.

Efficiency

Our Efficiency Index measures the change in outputs in relation to the costs for three major areas of our activities – core services, defence services and civil aviation services. 2003/4 saw an increase in efficiency of more than 2 per cent. The target was exceeded.

Financial – Profit before strategic investments

Profit before strategic investments has grown by more than 7 per cent since last year, once again exceeding the target.

Commercial activities contribution

This indicator measures the financial contribution to core and central services from our commercial activity. The commercial contribution has risen by more than 20 per cent since last year and the target was exceeded.

Other performance – Staff Skills Index

The Staff Skills Index takes an average of the competency markings awarded to all employees in their annual appraisals and compares it to the competency level in March 2001. Overall, competency markings improved every year from March 2001 and improved by more than 5 per cent to March 2004. However, the very challenging target of 7.5 per cent was not met.

1986

Chernobyl

The Chernobyl disaster led to the creation of the Met Office's Nuclear Accident Model (NAME), which enables us to understand and predict the movement of air-borne pollutants.

Key Performance Targets for 2004/5

The following key performance targets for 2004/5 have been announced in Parliament.

Forecast accuracy

To achieve an increase in the value for the Numerical Weather Prediction Index (measuring forecasting skill) of at least 1.4 by 31 March 2005, from the level achieved on 31 March 2004.

Financial – Profit before strategic investments

To deliver an operating profit before strategic investments of at least £15.5 million in FY 2004/5, whilst making strategic investments of between £5.8 million and £6.8 million.

Financial – Return on capital employed

To achieve a return on capital employed of at least 3.5 per cent in FY 2004/5.

Growth

To achieve direct services growth in both Government and non-Government revenue of at least 4.1 per cent in FY 2004/5 from the 2003/4 baseline, whilst maintaining direct services operating profit.

Freedom of information

To have in place by 31 December 2004 basic procedures to answer requests for information under the Freedom of Information Act 2000 and to review by 31 March 2005 the initial operation of the procedures to ensure that they are fit for purpose.

Efficiency measure

To develop, by March 2005, an efficiency measure which demonstrates the continuous improvement in value for money of the National Met. Service (including the Public Met. Service and relevant parts of the National Met. Programme).

1987



The Great Storm

This was a defining moment for the Met Office – and provided the impetus for significant improvements, particularly in computing and international satellite programmes.

1990

The Met Office becomes an Executive Agency

Executive Agencies are established to undertake the executive functions of government.

Key performance targets

		Targets and achievements						Targets
		2001/2		2002/3		2003/4		2004/5
Efficiency								
1. Efficiency Index ⁽¹⁾	Target	111.0		120.5		120.1		n/a ⁽⁶⁾
	Achievement	120.1		✓	118.4	x	121.0	✓
Quality								
2. Service Quality Index ⁽²⁾	Target	107.8		115.4		120.1		n/a ⁽⁶⁾
	Achievement	134.7		✓	130.3	✓	149.3	✓
Growth								
3. Direct Services Growth Target	Target	n/a		n/a		n/a		4.1% ⁽⁷⁾
	Achievement							
Financial								
4a. Return on capital employed ⁽³⁾	Target	>0.0%		>0.0% in period		Actual (supporting long term average ≥ 4% April '02-March '07 ⁽³⁾)		3.5%
	Achievement	2.1%		-3.4%		9.5%		✓
4b. Profit before strategic investments	Target	£17.6m		£13.3m		£14.0m		£15.5m ⁽⁸⁾
	Achievement	£18.5m		✓	£13.8m	✓	£14.8m	✓
5. Strategic investments ⁽³⁾	Target	£15.9m ±£1.5m		£19.4m ±£1.5m		n/a		6.3m ±0.5m ⁽⁸⁾
	Achievement	£15.1m		✓	£18.9m	✓	£24.1m	
6. Commercial activities contribution ⁽³⁾	Target	£4.4m		£3.8m		£4.0m		n/a ⁽⁶⁾
	Achievement	£3.3m		x	£3.65m	x	£4.5m	✓
Forecast accuracy								
7. NWP Index ⁽⁴⁾	Target	105.2		109.5		111.8		113.9
	Achievement	107.5		✓	110.0	✓	112.5	✓
Other performance								
8. Staff Skills Index ⁽⁵⁾	Target	n/a		n/a		107.5		n/a ⁽⁶⁾
	Achievement	101.5		104.0		105.1		x
9. Operational at Exeter	Target	n/a		n/a		September '03		n/a
	Achievement	n/a		n/a		August '03		✓
10. Freedom of information	Target	n/a		n/a		n/a		Set up ⁽⁹⁾
	Achievement							
11. Efficiency measure	Target	n/a		n/a		n/a		Develop ⁽¹⁰⁾
	Achievement							

1990



Establishing evidence of climate change

The Met Office's Hadley Centre for Climate Prediction and Research was opened by Margaret Thatcher. Its research plays a leading role on the world stage and figures prominently in the deliberations of the Intergovernmental Panel on Climate Change.

Report by the Comptroller and Auditor General on the Met Office’s Statement of Performance against 2003/4 Key Targets

The Chief Executive of the Met Office has asked me to validate performance against the 2003/4 Key Targets.

Respective responsibility of the Met Office, the Chief Executive and the Auditor

The Met Office and Chief Executive are responsible for the measurement and reporting of the Trading Fund’s performance against the Key Targets.

I examine and conclude on whether the Trading Fund has met its requirements under the Cabinet Office’s guidance (January 2003) on Next Steps Agencies Annual Reports to:

- provide full details of performance against all the Met Office’s Key Targets;
- ensure that all performance information is reliable and fairly presented.

Basis of Conclusion

The validation includes an examination, on a test basis, of evidence relevant to the amounts and disclosures of the outturns and achievements included within the Statement. It also includes an assessment of the significant judgements and methodologies made by the Met Office and the Chief Executive in the Statement’s preparation.

Conclusion

The Statement of Performance above includes all the Met Office’s 2003/4 Key Targets. It reliably and fairly presents the Agency’s performance against Key Targets. I have no observations to make on this Statement.

John Bourn

Comptroller and Auditor General
20 May 2004

- (1) The baseline for the Efficiency Index is 100.0 as at 31 March 2000.
- (2) The baseline for the Service Quality Index is 100.0 as at 31 March 1997.
- (3) See also note 2 to the accounts on page 59.
- (4) The baseline for the NWP Index is 100.0 as at 31 March 2000.
- (5) Due to the nature of this measure, interim targets were not set.

- (6) These targets are being discontinued.
- (7) In both Government and non-Government revenue.
- (8) Whilst making strategic investments of between £5.8 million and £6.8 million.
- (9) See page 41, Freedom of information.
- (10) See page 41, Efficiency measure.

1996

An expansion of commercial services

The Met Office became a Trading Fund and began earning all its funding from its customers.

2002

Operation Veritas in Afghanistan

Once again the Mobile Met. Unit was deployed ‘in theatre’.

50 years of progress

When Queen Elizabeth II came to the throne in 1952, most weather observations were taken from ships, ground radar, buoys and aircraft.

By the time of her Silver Jubilee, weather predictions were being revolutionised by satellite observations – and 1977 saw the launch of the first European Meteosat Satellite.

By 2002, as the nation celebrated her Golden Jubilee, the first of the Meteosat Second Generation satellites was launched.



2002

3 June 2002, Buckingham Palace, London: Fireworks celebrate the Queen's Golden Jubilee. The display followed a concert given in the grounds of the Palace.

2003

A sunny future – the Met Office moves to Exeter

A remarkable achievement – probably the largest move of an operational computer complex in Europe – and completed on time and within planned costs.

2003

Humans to blame for climate change

A study by climate scientist Dr Peter Stott found evidence that human activity is to blame for an increase in North American temperatures during the 20th century.

2080

Impact of climate change

By 2080 the average temperature in Devon may have risen by as much as 4 °C.

Accounts

Foreword to the accounts

Statutory background

These accounts have been prepared following the Direction given by HM Treasury on 12 February 2004 in line with section 4(6)(a) of the Government Trading Funds Act 1973.

History

The Met Office was set up as the Meteorological Department of the Board of Trade in 1854. Separate meteorological branches for each of the Armed Forces were created in 1914. We became part of the Air Ministry in 1920 and then part of the Ministry of Defence in 1964. We became an Executive Agency in 1990 and started operating as a trading fund in 1996, following Statutory Instrument SI 1996/774.

Review of activities

Our principal activities are set out on page 1, in our vision and goals.

Board members

During 2003/4, our operations were overseen by the UK Meteorological Board (chaired by 2nd Permanent Under-Secretary) which advises the Secretary of State for Defence, our owner. We are managed through monthly meetings of the Met Office Board and monthly meetings of the Executive Committee (formerly Executive Board until 23 February 2004) (see page 9). An audit committee ensures that appropriate financial risk management procedures are in place, following the Code of Best Practice from the Cadbury Committee on Financial Aspects of Corporate Governance. Also, a remuneration committee considers executive and 'incentivised' remuneration matters for the Met Office on behalf of the UK Met. Board.

Register of Interests

The Met Office maintains a public Register of Interests which details company directorships and other significant interests held by Board Members which may conflict with their management responsibilities. Persons wishing to view the Register should apply in writing to the Human Resources Director, Met Office, FitzRoy Road, Exeter, EX1 3PB.

Major initiatives during 2003/4

The relocation programme and transfer of operations to Exeter progressed as planned, with over 1,000 staff and 130 IT system and function projects successfully relocated. A redeployment and employee assistance programme operated for staff unwilling or unable to relocate.

All staff were kept abreast of developments through interactive seminars and the opportunity to visit the new office accommodation and the general Exeter area throughout the construction phase.

Comprehensive and detailed planning ensured a smooth and uninterrupted handover from Bracknell to Exeter.

Payment policy

We pay suppliers direct from the Met Office. Our policy is to pay within contracted payment terms or, without specifically agreed terms, within 30 days of receiving a valid invoice (see Better Payment Practice Code) or of the delivery date, if later. In 2003/4, we paid 99.79 per cent of our bills on time (2002/3, 99.76 per cent).



P D Ewins
Chief Executive
18 May 2004

Statement on the system of internal control

1. Scope of responsibility

As Accounting Officer, I have responsibility for maintaining a sound system of internal control that supports the achievement of the Met Office’s policies, aims and objectives, whilst safeguarding the Met Office funds and assets for which I am personally responsible. I carry this out in accordance with the responsibilities assigned to me in Government Accounting.

The Met Office is a Trading Fund within the Ministry of Defence and as such its Chief Executive is accountable to the Secretary of State for Defence. The UK Met. Board, as representative of our owners, convenes quarterly to review the performance of the Met Office against its key performance targets and business plan objectives that are agreed by Parliament. The UK Met. Board also advises me on the management of our major risks. In addition my Audit Committee comprising non-executive members of both the UK Met. Board and the Met Office Board supports me in this role.

2. The purpose of the system of internal control

The system of internal control is designed to manage risk to a reasonable level rather than to eliminate all risk of failure to achieve policies, aims and objectives; it can therefore only provide reasonable and not absolute assurance of effectiveness.

The system of internal control is based on an ongoing process designed to identify the principal risks to the achievement of Met Office policies, aims and objectives; to evaluate the likelihood of those risks being realised; the impact should they be realised; and to manage them efficiently, effectively and economically. The system of internal control has been in place in the Met Office for the year ended 31 March 2004 and up to the date of approval of the *Annual Report and Accounts*, and accords with Treasury guidance.

3. Capacity to handle risk

A corporate risk management process is one of the key processes of the Met Office’s ISO 9001 Business Management System. This process provides guidance to all staff involved in risk management activities and includes best practice guidance on managing risk in all Met Office activities but especially project, programme, and corporate risk. The Met Office Board and the Audit Committee have endorsed this process. All Directors and Senior Managers are given the authority to manage risks as part of their responsibilities.

4. The risk and control framework

In the Met Office, the major corporate risks have been identified through workshops and structured interviews with Directors and senior managers. The risks are recorded in the Corporate Risk Register. This is maintained by the Corporate Risk Co-ordinator who has the responsibility for ensuring that the risks are regularly reviewed. The assigned risk owner, in conjunction with the Corporate Risk Co-ordinator, assesses the risks and identifies potential risk mitigation activities for agreement by the Board. The Board is also responsible for determining the Met Office’s appetite for risk. This is carried out as an on-going process dictated by current circumstances. The Audit Committee reviews the risk management strategy adopted by the Met Office and, in particular, assesses the adequacy of the internal controls operating within all key processes in relation to risk identification, assessment, response and monitoring. It also reviews the Corporate Risk Register on a quarterly basis.

The Corporate Risk Register is supported by a set of local risk registers to enable risk management to be embedded at all levels in the Met Office. These are managed by a group of Local Risk Co-ordinators whose roles are to train and advise local managers on risk management. The Local Risk Co-ordinators also work with the Corporate Risk Co-ordinator to ensure that potential corporate risks are identified at an early stage and escalated to the Corporate Risk Register for assessment where appropriate.

The major operational risks to the Met Office are mostly associated with the ability of the Met Office to deliver to its customers. As mitigation against these risks, a set of business continuity plans has been put into place. These plans are tested on a regular basis.

5. Review of effectiveness

As Accounting Officer, I also have responsibility for reviewing the effectiveness of the system of internal control. My review is informed by the work of the internal auditors and the executive managers within the Met Office who have responsibility for the development and maintenance of the internal control framework, and comments made by the external auditors in their management letter and other reports. I have been advised on the implications of the result of my review of the effectiveness of the system of internal control by the board, the Audit Committee and a plan to address weaknesses and ensure continuous improvement of the system is in place.

The Met Office Board is responsible for developing Met Office strategy. The Executive Committee is responsible for managing the implementation of Met Office strategy. The Met Office Board monitors the strategic performance of the Met Office and the associated strategic risks. The Executive Committee reviews the day-to-day business performance of the Met Office, including the achievement of our business plan objectives and the associated operational risks. The system of internal control is enhanced further through several sub-committees. These include the Investment Appraisal Committee (capital and other strategic investments) and the Bid Appraisal Committee (major sales bids).

The Met Office’s internal audit function was carried out during 2003/4 by PKF, a firm of accountants and business advisors, to the standards defined in the Government Internal Audit Manual. The work of the internal audit team is informed by an analysis of the risk to which the Met Office is exposed, and the annual internal audit plans are based on this analysis. The internal audit plans are continuously reviewed and, in addition to the planned audit reviews, a number of additional reviews have been carried out, at my request, in areas identified as being potentially high risk, for example in facilities management. The Audit Committee approves the Internal Audit programme. In addition the work of the Audit Committee was expanded in 2003/4 to include the review of business continuity plans. The audit review concluded that the system of internal control has continued to be strengthened and is now sound for the purposes of the Met Office and is operating effectively in all key areas.

A philosophy of continuous improvement underpins the Met Office Business Management System, and all components are subject to regular Management Review and internal process audit to check for compliance and to identify opportunities for improving their efficiency and effectiveness.



P D Ewins
Chief Executive
18 May 2004

Statement of the responsibilities of the Agency and the Chief Executive

Under section 4(6)a of the Government Trading Funds Act 1973, HM Treasury has directed the Met Office to prepare a statement of accounts for the 2003/4 financial year in the form and on the basis set out in the Accounts Direction issued on 12 February 2004. The accounts are prepared on an accruals basis and give a true and fair view of the Met Office's state of affairs at the year-end and of its income and expenditure, total recognised gains and losses and cash flows for the financial year.

In preparing the accounts, the Agency is required to:

- observe the Accounts Direction issued by HM Treasury, including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis;
- make judgements and estimates on a reasonable basis;
- state whether applicable accounting standards have been followed, and disclose and explain any material departures in the financial statements;
- prepare the financial statements on the 'going concern' basis, unless it is inappropriate to presume that the Agency will continue in operation.

HM Treasury has appointed the Chief Executive of the Met Office as the Accounting Officer for the trading fund. His relevant responsibilities as Accounting Officer, including responsibility for the propriety and regularity of the public finances and for the keeping of proper records, are set out in the Accounting Officer's Memorandum, issued by HM Treasury and published in *Government Accounting*.

Certificate and Report of the Comptroller and Auditor General to the Houses of Parliament

I certify that I have audited the financial statements on pages 52-76 under the Government Trading Funds Act 1973. These financial statements have been prepared under the historical cost convention as modified by the revaluation of certain fixed assets and the accounting policies set out on pages 56-59.

Respective responsibilities of the Met Office, the Chief Executive and Auditor

As described on page 49, the Met Office and Chief Executive are responsible for the preparation of the financial statements in accordance with the Government Trading Funds Act 1973 and Treasury directions made thereunder and for ensuring the regularity of financial transactions. The Met Office and the Chief Executive are also responsible for the preparation of the other contents of the *Annual Report*. My responsibilities, as independent auditor, are established by statute and I have regard to the standards and guidance issued by the Auditing Practices Board and the ethical guidance applicable to the auditing profession.

I report my opinion as to whether the financial statements give a true and fair view and are properly prepared in accordance with the Government Trading Funds Act 1973 and Treasury directions made thereunder, and whether in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them. I also report if, in my opinion, the Foreword is not consistent with the financial statements, if the Accounting Officer has not kept proper accounting records, or if I have not received all the information and explanations I require for my audit.

I read the other information contained in the *Annual Report* and consider whether it is consistent with the audited financial statements. I consider the implications for my certificate if I become aware of any apparent misstatements or material inconsistencies with the financial statements.

I review whether the statement on pages 47-48 reflects the Met Office's compliance with Treasury's guidance on the Statement on Internal Control. I report if it does not meet the requirements specified by Treasury, or if the statement is misleading or inconsistent with other information I am aware of from my audit of the financial statements. I am not required to consider, nor have I considered whether the Accounting Officer's Statement on Internal Control covers all risks and controls. I am also not required to form an opinion on the effectiveness of the Met Office's corporate governance procedures or its risk and control procedures.

Basis of audit opinion

I conducted my audit in accordance with United Kingdom Auditing Standards issued by the Auditing Practices Board. An audit includes examination, on a test basis, of evidence relevant to the amounts, disclosures and regularity of financial transactions included in the financial statements. It also includes an assessment of the significant estimates and judgements made by the Met Office and Chief Executive in the preparation of the financial statements, and of whether the accounting policies are appropriate to the Met Office's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations which I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by error, or by fraud or other irregularity and that, in all material respects, the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them. In forming my opinion I have also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In my opinion:

- the financial statements give a true and fair view of the state of affairs of the Met Office at 31 March 2004 and of the profit, total recognised gains and losses and cash flows for the year then ended and have been properly prepared in accordance with the Government Trading Funds Act 1973 and directions made thereunder by Treasury; and
- in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

I have no observations to make on these financial statements.

John Bourn

Comptroller and Auditor General
20 May 2004

National Audit Office
157-197 Buckingham Palace Road
Victoria
London SW1W 9SP

Profit and loss account

for the year ended 31 March 2004

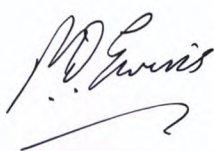
	Notes	2003/4 £ 000	2002/3 £ 000
Turnover	3	160,775	157,398
Cost of sales	4, 6, 8	(131,496)	(127,764)
Gross profit		29,279	29,634
Selling and distribution costs	4, 8	(9,313)	(9,342)
Administrative expenses	4, 8	(30,754)	(25,350)
Other operating income	5	1,581	–
Operating profit /(loss)	6	(9,207)	(5,058)
Profit /(loss) on disposal of fixed assets	6	24,528	(291)
Exceptional items	6	(12,599)	(2,805)
Profit /(Loss) on ordinary activities		2,722	(8,154)
Interest receivable		695	858
Interest payable	7	(1,526)	(55)
Retained profit /(loss)		1,891	(7,351)
Return on capital employed (ROCE)	2	9.5%	-3.4%

The notes on pages 56 to 76 form part of these accounts.
The movement on the General Reserve is set out at note 17 on page 72.

Balance sheet

as at 31 March 2004

	Notes	31 March 2004		31 March 2003	
		£ 000	£ 000	£ 000	£ 000
Fixed assets					
Tangible Assets	9		198,547		161,030
Investments	10		1,200		1,200
			199,747		162,230
Current assets					
Stocks	11	874		1,105	
Debtors and prepayments	12	50,189		31,978	
Cash on deposit	13	18,800		20,706	
Cash at bank and in hand	13	300		356	
		70,163		54,145	
Creditors: amounts falling due within one year	14	(68,872)		(49,514)	
Net current assets			1,291		4,631
Debtors: amounts falling due after more than one year	12		11,700		–
Creditors: amounts falling due after more than one year	14		(29,522)		(702)
Total assets less liabilities			183,216		166,159
Financed by:					
Provisions for liabilities and charges	15		15,641		6,661
Capital and reserves					
Public dividend capital		58,867		58,867	
Revaluation Reserve	16	15,807		10,369	
General Reserve	17	92,901		90,262	
Government funds			167,575		159,498
Total			183,216		166,159



PD Ewins
Chief Executive
18 May 2004

The notes on pages 56 to 76 form part of these accounts.

Cash flow statement

for the year ended 31 March 2004

	Notes	2003/4 £ 000	2002/3 £ 000
Reconciliation of operating profit to net cash inflow from operating activities			
Operating profit/(loss)		(9,207)	(5,058)
Exceptional items included in operating profit / (loss)	6	739	–
Depreciation charges	4, 9	22,201	22,086
Provisions for liabilities and charges		645	2,786
Provisions utilised in year	15	(778)	(1,141)
(Increase)/Decrease in stocks		231	631
(Increase)/Decrease in debtors		(892)	1,070
Increase/(Decrease) in creditors		10,699	3,078
Net cash inflow/(outflow) from operating activities		23,638	23,452
Cash Flow Statement			
Net cash inflow/(outflow) from operating activities		23,638	23,452
Payments for exceptional items	20	(4,713)	–
Returns on investments and servicing of finance	20	44	803
Net capital expenditure	20	(20,707)	(37,297)
Acquisitions and disposals	10, 20	–	(700)
Management of liquid resources	20	1,906	12,494
Increase/(Decrease) in financing	20	(224)	926
Increase/(Decrease) in cash		(56)	(322)
Reconciliation of net cash flow to movement in net debt			
Increase/(Decrease) in cash	20	(56)	(322)
Increase/(Decrease) in cash on deposit	20	(1,906)	(12,494)
Other movements	20	(20,392)	(926)
Increase/(Decrease) in net funds		(22,354)	(13,742)
Net funds at 1 April	20	20,136	33,878
Net funds at 31 March		(2,218)	20,136

The notes on pages 56 to 76 form part of these accounts.

Statement of total recognised gains and losses

for the year ended 31 March 2004

	Notes	2003/4 £ 000	2002/3 £ 000
Profit / (Loss) for the financial year		1,891	(7,351)
Movement on revaluation of fixed assets charged to the Revaluation Reserve	16	5,438	156
Total Recognised Gains and Losses relating to the year		7,329	(7,195)
Reconciliation of movements in Government funds			
Government funds at 1 April		159,498	165,848
Total Recognised Gains and Losses relating to the year		7,329	(7,195)
Movements in long-term loans		–	–
Transfer to General Reserve		748	845
Net movement in Government funds		8,077	(6,350)
Balance at 31 March		167,575	159,498

Notes to the accounts

1 Accounting policies

(a) Basis of accounting

These accounts have been prepared in compliance with an Accounts Direction dated 12 February 2004 issued by HM Treasury in accordance with Section 4(6)(a) of the Government Trading Funds Act 1973. They follow the accruals concept and the historical cost convention, modified to include revaluations of fixed assets and stocks. They comply with the accounting and disclosure requirements of the Companies Act 1985, the Accounting Standards Board and all applicable accounting standards where appropriate.

(b) Exceptional items

Items are treated as exceptional if they derive from events or transactions that fall within ordinary operating activities and which individually, or if of a similar type, in aggregate, need to be disclosed by virtue of their size or incidence, for the financial statements to give a true and fair view.

(c) Turnover

Turnover comprises the invoiced value of services (net of VAT) supplied to the private sector, Government departments and the wider public sector. Income received under collaborative arrangements for the capital installation of rainfall radar systems is credited as deferred income within creditors until tangible fixed assets are acquired.

(d) Research and development

An amendment to the 'Trading Funds Accounts Guidance' for 2001/2 removed the option under which entities could choose whether or not to capitalise development expenditure. Now, providing development expenditure meets the criteria in SSAP13, capitalisation is mandatory. As there is no expenditure meeting SSAP13 capitalisation criteria, all development expenditure has been charged to the Profit and Loss Account.

(e) Tangible fixed assets

Valuation

Freehold land and buildings in continuing use are revalued by qualified valuers every five years. The relocation to Exeter was completed during 2003/4 and in consequence the Beaufort Park, Reading and London Road, Bracknell freeholds became non-operational. These assets have therefore been revalued to open market value.

Plant and equipment, including computers, is capitalised where the useful life exceeds three years and the cost of acquisition and installation exceeds £5,000 (excluding VAT). From 31 March 1996, networked minor computers and related equipment, which individually do not meet the criteria, have also been capitalised. Major items are revalued annually using the Gross Domestic Product Deflator Index.

Certain meteorological equipment installed in commercial aircraft or at sea is not capitalised as it is outside the direct control of the Met Office and has an uncertain operational life.

The Met Office is a member of EUMETSAT and, as such, contributes to the cost of its satellite programmes. The Met Office and its customers benefit from the data and services resulting from these programmes. Expenditure other than research and development on programmes to date is capitalised and revalued annually using the Aerospace Combined Input Cost Index published by the Office for National Statistics.

Fixtures and fittings include improvements to leasehold buildings and are depreciated over five or 11 years.

Depreciation

Freehold land is not depreciated. Depreciation on buildings is calculated to write off the cost, or value, by equal instalments over the asset’s estimated useful life (not exceeding 50 years). As a consequence of relocation to Exeter, accelerated depreciation charges were applied in 2003/4 to write off fully the historic cost values of the London Road Bracknell HQ and the Beaufort Park Bracknell buildings by Autumn 2003. Computers, plant and equipment are depreciated by the straight-line method at a rate calculated to write off the cost, or value, over the asset’s estimated useful life. Currently policy is to write off computers, plant and equipment over three to ten years. Satellite assets are depreciated using the straight-line method, based on the total cost of the programme (including future planned expenditure) and the expected operational life, currently 15 years.

(f) Leased assets

Assets held under finance leases are included in the balance sheet as tangible fixed assets at their equivalent capital value and are depreciated over their estimated economic lives or the finance lease period, whichever is shorter. The corresponding liability is recorded as a creditor. The interest element of the rental costs is charged against profits, using the actuarial method, over the period of the lease. Rents for those leasehold properties and vehicles which are held under operating leases are charged against profits. A general purpose computing server and a supercomputer are each held under finance leases.

(g) Stocks

Stocks are valued at the lower of cost, or net current replacement cost if materially different, and net realisable value.

(h) Insurance

The Met Office reviews its risk exposures and ensures that appropriate insurance is provided.

(i) Pensions

Pension benefits are provided through the Civil Service pension arrangements. From 1 October 2002, Met Office staff, as civil servants, may be in one of three statutory based “final salary” defined benefit schemes (classic, premium, and classic plus). New entrants after 1 October 2002 may choose between membership of premium or joining a good quality “money purchase” stakeholder based arrangement with a significant employer contribution (partnership pension account).

Classic Scheme

Benefits accrue at the rate of 1/80th of pensionable salary for each year of service. In addition, a lump sum equivalent to three years’ pension is payable on retirement. Members pay contributions of 1.5 per cent of pensionable earnings. On death, pensions are payable to the surviving spouse at a rate of half the member’s pension. On death in service, the scheme pays a lump sum benefit of twice pensionable pay and also provides a service enhancement on computing the spouse’s pension. The enhancement depends on length of service and cannot exceed 10 years. Medical retirement is possible in the event of serious ill health. In this case, pensions are brought into payment immediately without actuarial reduction and with service enhanced as for widow(er) pensions.

Premium Scheme

Benefits accrue at the rate of 1/60th of final pensionable earnings for each year of service. Unlike classic, there is no automatic lump sum, but members may commute some of their pension to provide a lump sum up to a maximum of 3/80ths of final pensionable earnings for each year of service or 2.25 times pension if greater (the commutation rate is £12 of lump sum for each £1 of pension given up). For the purposes of pension disclosure the tables assume maximum commutation. Members

pay contributions of 3.5 per cent of pensionable earnings. On death, pensions are payable to the surviving spouse or eligible partner at a rate of 3/8ths the member's pension (before any commutation). On death in service, the scheme pays a lump sum benefit of three times pensionable earnings and also provides a service enhancement on computing the spouse's pension. The enhancement depends on length of service and cannot exceed 10 years. Medical retirement is possible in the event of serious ill health. In this case, pensions are brought into payment immediately without actuarial reduction. Where the member's ill health is such that it permanently prevents them undertaking any gainful employment, service is enhanced to what they would have accrued at age 60.

Classic Plus Scheme

This is essentially a variation of premium, but with benefits in respect of service before 1 October 2002 calculated broadly as per classic.

Pensions payable under classic, premium, and classic plus are increased in line with the Retail Prices Index.

Partnership Pension Account

This is a stakeholder-type arrangement where the employer pays a basic contribution of between 3 per cent and 12.5 per cent (depending on the age of the member) into a stakeholder pension product. The employee does not have to contribute but where they do make contributions, these will be matched by the employer up to a limit of 3 per cent (in addition to the employer's basic contribution). Employers also contribute a further 0.8 per cent of pensionable salary to cover the cost of risk benefit cover (death in service and ill health retirement). The member may retire at any time between the ages of 50 and 75 and use the accumulated fund to purchase a pension. The member may choose to take up to 25 per cent of the fund as a lump sum.

(j) Cash

Cash includes cash in hand and deposits payable on demand with any qualifying institution, less overdrafts from any qualifying institution repayable on demand.

(k) Financial instruments

Currency risk

In order to manage foreign exchange risk the Met Office policy is to buy forward foreign currency for payments to international bodies as soon as amounts can be reliably estimated. The payments are in respect of annual subscriptions and contributions including payments for satellite programmes. In this case, payments are accounted for in sterling at the forward purchase rate. All other foreign currency payments are accounted for at the sterling equivalent at the exchange rate ruling on the day the payment is made.

Interest rate risk

The Met Office follows the Treasury rules by investing all surplus funds in the National Loan Fund.

Liquidity risk

The Met Office has no exposure to liquidity risk as it has no borrowings. Short term debtors and creditors are excluded from financial instruments.

(I) Consolidated accounts

The Met Office has no subsidiaries, associates or joint ventures which require the production of group accounts.

2 Key Financial Targets

The Met Office’s Key Financial Targets for 2003/4, as announced in Hansard (11 June 2003, column 50WS), were:

- a) To deliver an operating profit before strategic investments of at least £14 million in 2003/4. This is in support of a long-term target to achieve a return on capital employed, averaged over the period from 1 April 2002 to 31 March 2007, of at least 4 per cent.
- b) To achieve a total contribution from commercial activities in 2003/4 of at least £4.0 million.

Results

a) Return on Capital Employed (ROCE)

ROCE is a measure of how effectively an organisation is using its capital. It is calculated as operating profit/loss (after the disposal of fixed assets but before any exceptional items) as a percentage of the average of Government funds employed in the business at the beginning and end of the year.

The table below shows the in-year and averaged ROCE over the period from the beginning of the current target period (1 April 2002) to 31 March 2004.

	2003/4	2002/3
Actual	9.5%	-3.4%
Target	n/a	>0.0%
Average	3.1%	-3.4%

Note that the target of 4 per cent averaged over the period 1 April 2002 to 31 March 2007 has been replaced from 1 April 2004. A ROCE target has been agreed with HM Treasury – a return of at least 3.5 per cent.

b) Strategic Investments

Strategic investment is defined as the total of profit and loss account expenditure on Corporate Projects and Corporate Investment Fund Projects. For 2003/4 these projects included HQ relocation and polar satellite development.

	2003/4 £ 000	2002/3 £ 000
HQ relocation	21,007	12,776
Polar satellite development	2,738	5,038
Other strategic investments	310	1,039
Total strategic Investment	24,055	18,853
Total strategic investments target	n/a	19,400 (+/-1,500)

c) Commercial Activities Contribution

Commercial activities contribution represents the contribution made towards the Met Office’s non-commercial operations as a result of its participation in competitive markets. The cost basis used attributes only those costs to commercial activities which would no longer be borne by the Met Office should commercial activities cease.

	2003/4 £ 000	2002/3 £ 000
Commercial activities revenue	20,380	22,267
Commercial activities costs	(15,898)	(18,620)
Commercial activities contribution	4,482	3,647
Commercial activities contribution target	4,000	3,800

3 Turnover and Segmental Analysis

		2003/4			2002/3		
		£ 000	£ 000	£ 000	£ 000	£ 000	£ 000
	Main Customer	Core	Direct Services	Total	Core	Direct Services	Total
Defence	MoD	27,693	32,218	59,911	27,739	30,797	58,536
Civil aviation	CAA	16,269	9,315	25,584	17,043	9,102	26,145
Civil departments	Defra	27,672	9,775	37,447	27,740	9,836	37,576
Climate research		–	10,525	10,525	–	7,849	7,849
Commercial		–	20,380	20,380	–	22,267	22,267
Government met. research and other		1,762	5,166	6,928	–	5,025	5,025
Total Turnover		73,396	87,379	160,775	72,522	84,876	157,398

Notes

- (i) All turnover relates to the same class of business, the provision of meteorological and related services. There were no acquisitions or discontinued operations.
- (ii) ‘Core’ is the programme of work necessary to generate, and make available centrally, the underpinning weather forecasts and climatological services which are the basis for specified ‘Direct Services’ to Core customers.
- (iii) ‘Commercial’ contracts are subject to open competition.
- (iv) The share of net assets relating to each class of turnover is not identifiable.

4 Cost of sales, selling and distribution and administrative charges

Cost of sales is defined as that expenditure which is directly related to a service or product being supplied to a specific third-party customer or market. This includes direct materials and labour, development costs and fixed and variable overheads to the extent that these relate specifically to production.

Selling and distribution includes costs relating to marketing and market research, the Customer Centre, and the costs associated with maintaining the Met Office web site.

Administrative expenses includes all costs relating to the general management of the business, training, technical support, and any research and development costs not included under cost of sales. It also includes the costs of strategic investment projects and the National Meteorological Library.

Administrative expenses includes Relocation costs of £16.0m (2002/3 £13.1m). Also included within Administrative expenses are general administrative costs of £9.7m (2002/3 £9.3m).

Cost of Sales includes additional exceptional items totalling £739,000, which are not related to relocation and represent rents and other costs of leasehold properties which were non-operational at 31 March 2004 and early retirement and severance costs.

The costs are further analysed by expenditure type as follows:

	Note	2003/4 £ 000	2002/3 £ 000
Staff costs (excluding exceptional items)	8	77,640	76,741
Early retirement costs		306	314
Relocation – staff accommodation, travel and subsistence		11,469	4,684
Other travel and subsistence		4,296	4,332
Equipment and services		28,392	26,691
Accommodation		10,141	9,433
Operating leases – plant and machinery		1,194	1,282
Operating leases – other		2,448	2,702
Depreciation – on owned assets		20,459	22,001
– on assets held under finance leases		1,742	85
International services and subscriptions		11,589	11,407
Other administrative expenses		1,887	2,784
Total		171,563	162,456

Notes

- (i) The early retirement cost excludes relocation early retirement costs which are shown as an exceptional item.
- (ii) Accommodation includes £2.0 million (2002/3, £1.9 million) operating lease rentals of property.
- (iii) Depreciation contains the extra charge resulting from reducing the life of assets in consequence of the relocation to Exeter.
- (iv) International services and subscriptions include £4.3m (2002/3 £5.8m) to the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) (excluding amounts capitalised as satellite assets), £4.2m (2002/3 £3.3m) to the European Centre for Medium-Range Weather Forecasts (ECMWF), £1.6m (2002/3 £1.4m) to the World Meteorological Organization (WMO) and £0.3 m (2002/3 £0.3m) to the Network of European Meteorological Services Composite Observing System (EUCOS). Membership of these organisations enables the Met Office on behalf of the UK to engage in and benefit from, the European meteorological satellite programme and to receive support in its provision of medium-range weather forecasts and associated research. Membership also enables the Met Office on behalf of the UK, to promote and benefit from co-operations between members in the exchange of observational data and forecasts, together with a widening range of environmental programmes.
- (v) Other administrative expenses include an audit fee of £68,000 (2002/3 £52,500) and a fee of £18,000 (2002/3, £15,000) for the review of Performance Indicators.
- (vi) Total cost of research and development, which was funded by customers including the Department for Environment, Food and Rural Affairs was £28.5m (2002/3, £25.8m).
- (vii) Relocation travel and subsistence relates to the costs of housing removal, temporary accommodation and travel between Bracknell and Exeter, for those staff who have relocated to, or are in the process of relocating to, Exeter.

5 Other operating income

	2003/4 £ 000	2002/3 £ 000
Foreign exchange rate differences	(1,581)	–

6 Exceptional items

	2003/4 £ 000	2002/3 £ 000
Early retirement and severance costs	4,433	1,901
Leaseholds Provision	8,166	904
Net profit on disposal of fixed assets (principally disposal of freehold Shinfield site)	(24,528)	291
Total	(11,929)	3,096

Exceptional items are principally as a result of the relocation of the Met Office from Bracknell to Exeter. The early retirement and severance costs relate to staff who left the Met Office during the year, primarily as a result of relocation. The leasehold provision relates to rents and other costs of leasehold properties which were non-operational at 31 March 2004. The Met Office College freehold site at Shinfield, Reading was sold in March 2004 and the profit on disposal is included above. The Operating Loss in the Profit and Loss Account is stated after charging additional exceptional items totalling £739,000 as part of Cost of Sales. These exceptional items are not related to relocation and represent rents and other costs of leasehold properties which were non-operational at 31 March 2004, and early retirement and severance costs.

7 Interest payable and similar charges

	2003/4 £ 000	2002/3 £ 000
On loans wholly repayable within five years	992	41
On finance leases wholly repayable within five years	47	14
Discounting of Provisions	487	–
Total interest payable and similar charges	1,526	55

8 Staff

(a) Staff costs	Note	2003/4 £ 000	2002/3 £ 000
Salaries, bonuses and allowances		64,169	63,733
Early retirement costs	6	4,739	2,215
Social security		5,432	5,374
Pension contributions		8,039	7,634
Total staff costs		82,379	78,956

The Principal Civil Service Pension Scheme (PCSPS) is an unfunded multi-employer defined benefit scheme but the Met Office is unable to identify its share of the underlying assets and liabilities. A full actuarial valuation was carried out as at 31 March 2003. Details can be found in the resource accounts of the Cabinet Office: Civil Superannuation (www.civilservice-pensions.gov.uk).

For 2003/4, pursuant to the Superannuation Act 1972, employer's contributions of £8.0m were payable to the PCSPS (2002/3 £7.6m) at one of four rates in the range 12 per cent to 18.5 per cent of pensionable pay, based on salary bands. Rates will remain the same next year, subject to revalorisation of the salary bands. Employer contributions are to be reviewed every four years following a full scheme valuation by the Government Actuary. The contribution rates reflect benefits as they are accrued, not when the costs are actually incurred, and reflect past experience of the scheme.

Employees joining after 1 October 2002 could opt to open a partnership pension account, a stakeholder pension with an employer contribution. Employers' contributions paid to appointed stakeholder pension providers, and also to the Principal Civil Service Pension Scheme to cover the cost of the future provision of lump sum benefits on death in service and ill health retirement of these employees, were immaterial.

Staff costs include exceptional items in respect of early retirement of £4,433,000.

(b) Average staff numbers	2003/4 number	2002/3 number
Senior Management	9	11
Scientific, managerial, technical	1,398	1,535
Support	403	532
Locally engaged civilians overseas	19	19
Monthly average staff numbers (all UK Government Civil Servants except locally engaged civilians)	1,829	2,097

There were 1,822 staff employed at 31 March 2004 compared with 2,081 at 31 March 2003, both figures expressed as full-time equivalents.

(c) Directors’ remuneration

(i) Salaries and benefits

Salaries and benefits are reviewed annually. Basic salaries for members of the Senior Civil Service were increased with effect from 1 April 2003. The pay award was dependent on performance and ranged from 1.75% to 9.0%.

(ii) Performance-related bonuses

These are calculated in accordance with a fixed formula which measures performance against the Met Office’s key performance targets. They are paid to Board members on the recommendation of the Remuneration Committee.

(iii) Pensions

See Note 8(a) above.

(iv) Directors’ emoluments

The table below shows emoluments and pension data for Executive Board Directors:

Name	2003/4						2002/3
	Salary, including performance pay £ 000	Real increase in pension and related lump sum at age 60 £ 000	Total accrued pension at age 60 at 31 March 2004 and related lump sum £ 000	Cash Equivalent Transfer Value at 31 March 2003 nearest £ 000	Cash Equivalent Transfer Value at 31 March 2004 nearest £ 000	Real increase in Cash Equivalent Transfer Value nearest £ 000	Salary, including performance pay £ 000
PD Ewins	110-115	0-2.5 plus 5-7.5 lump sum	50-55 plus 155-160 lump sum	760	835	30	105-110
JFB Mitchell	75-80	2.5-5 plus 10-12.5 lump sum	25-30 plus 80-85 lump sum	386	476	70	20-25
CR Flood	35-40	0-2.5 plus 0-2.5 lump sum	30-35 plus 90-95 lump sum	574	581	(7)	65-70
P Mabe	85-90	0-2.5 plus 2.5-5 lump sum	10-15 plus 35-40 lump sum	147	170	13	85-90
RD Hunt	65-70	0-2.5 plus 2.5-5 lump sum	25-30 plus 85-90 lump sum	461	503	19	65-70
M Sands	55-60	0-2.5 plus 2.5-5 lump sum	25-30 plus 85-90 lump sum	464	486	16	70-75
S Noyes	70-75	2.5-5 plus 5-7.5 lump sum	20-25 plus 65-70 lump sum	248	285	31	65-70
S Penfold	10-15	0-2.5	30-35	426	464	16	–

Notes

- (a) Real increase in Cash Equivalent Transfer Values are shown after adjustment for inflation and changes in market investment factors.
- (b) The Chief Executive, Peter Ewins, received emoluments comprising a basic salary and a performance bonus and pension.
- (c) C R Flood retired on 23 September 2003.
- (d) M Sands left the Office on 1 February 2004.
- (e) S Penfold was appointed Human Resources Director effective from 12 January 2004.
- (f) All Directors, with the exception of S Penfold, have chosen the 'Classic' option of the new Principal Civil Service Pension Scheme. S Penfold has chosen the 'Premium' option; with the 'Premium' option lump sums can be commuted and are thus not shown. Further details of the new arrangements are disclosed at Note 1(h). No Director opted for a Partnership Pension Account.
- (g) Members of the pension scheme have the option to pay Additional Voluntary Contributions (AVCs); any AVCs made are not included in the table above.
- (h) In the calculation of the real increase in pension an assumption of 2.8% inflation has been made.
- (i) Real increase in pension at age 60 and total accrued pension at age 60 at 31 March 2004, together with related lump sums, may in part be based on membership of the Principal Civil Service Pension Scheme prior to Met Office employment.
- (j) No director received any benefits in kind in either 2003/4 or 2002/3.
- (k) During the year S Noyes received an additional payment of £6,000 related to allowances unpaid in previous years.

(d) Early retirement	2003/4 £ 000	2002/3 £ 000
Expenditure incurred in current year	2,076	542
Expenditure to be incurred within one year	—	—
Expenditure to be incurred in later years	—	—
Total early retirement expenditure	2,076	542

This represents payments made in year to employees who have been granted early retirement.

9 Tangible fixed assets

The movements in each class of assets were:

	Satellite programme £ 000	Land and buildings £ 000	Assets in course of construction £ 000	Fixtures and fittings £ 000	Plant and equipment £ 000	Total tangible £ 000
Cost or valuation:						
At 1 April 2003	140,618	21,365	73,146	1,715	64,683	301,527
Additions	6,820	2,000	41,023	1,187	6,570	57,600
Disposals	–	(6,978)	(500)	–	(8,821)	(16,299)
Transfers	–	50,259	(113,669)	3,723	59,687	–
Revaluation	3,854	4,530	–	–	663	9,047
At 31 March 2004	151,292	71,176	–	6,625	122,782	351,875
Depreciation:						
At 1 April 2003	86,281	7,154	–	632	46,430	140,497
Charged during year	10,259	1,411	–	729	9,802	22,201
Disposals	–	(3,730)	–	–	(8,501)	(12,231)
Revaluation	2,359	–	–	–	502	2,861
At 31 March 2004	98,899	4,835	–	1,361	48,233	153,328
Net book value:						
At 1 April 2003	54,337	14,211	73,146	1,083	18,253	161,030
At 31 March 2004	52,393	66,341	–	5,264	74,549	198,547

Assets held under finance leases included above:

	Satellite programme £ 000	Land and buildings £ 000	Assets in course of construction £ 000	Fixtures and fittings £ 000	Plant and equipment £ 000	Total tangible £ 000
Cost:						
At 31 March 2004	–	–	–	–	21,318	21,318
Depreciation:						
Charge for year	–	–	–	–	1,742	1,742
Depreciation:						
At 31 March 2004	–	–	–	–	1,742	1,742

Notes

- (i) All land and buildings are held as freehold. The net book value of freehold land and buildings includes £11.7 million of freehold land (1 April 2003, £12.9m) which has not been depreciated. Freehold Buildings are depreciated in full over their estimated life (not exceeding 50 years).
- (ii) Fixtures and fittings are improvements to leasehold buildings, which are depreciated over five or 11 years.
- (iii) The net book value of plant and equipment is based on a valuation at 14 December 1995 by Grimley J R Eve (Chartered Surveyors), updated by appropriate indices. Plant and equipment includes computers and the supercomputer. These are depreciated over three to ten years.
- (iv) Land and buildings were valued by Chesterton (Chartered Surveyors) on 2 November 1999, in accordance with the Practice Statements and Guidance Notes set out in the Appraisal and Valuation Manual of the Royal Institution of Chartered Surveyors, on the basis of open market values for existing use, except that a specialised building has been valued on the basis of depreciated replacement cost.
- (v) Two freehold sites became non-operational during 2003/4 (the London Road, Bracknell HQ and the Beaufort Park sites) and were revalued to Open Market Value.
- (vi) Assets held under finance leases comprise a supercomputer and equipment providing a general purpose computing service.

10 Investment

The Met Office holds 499 Class ‘A’ Shares (this equates to 49.9%) in a joint venture, weatherXchange Ltd, an entity governed by UK law. The entire consideration for the shares was paid in cash. The Met Office also holds 700,000 £1 preference shares. In 2001/2 a loan facility was provided; this has now been terminated and no amounts are outstanding. Tranches of 200,000 and 500,000 £1 preference shares were acquired on 12 December 2002 and 31 March 2003, respectively. The registered head office of weatherXchange Ltd is 4th Floor, 127 Clerkenwell Road, London EC1R 5LP. The date of incorporation was 11 May 2001. The nature of the business is providing weather data and derivatives trading. The financial year end of weatherXchange Ltd is 31 March. Published accounts for 2002/3 have been deposited at Companies House. weatherXchange Ltd has made no contribution to the turnover and operating profit to date. In 2003/4, the Met Office provided, but did not recharge, services to weatherXchange Ltd totalling £91,000 (2002/3 £106,000). In the 2002/3 year, weatherXchange Ltd had turnover of £274,000 and an operating loss of £814,000. At 31 March 2003, weatherXchange Ltd had capital and reserves of £460,000.

						Investment £ 000
Cost or valuation:						
At 1 April 2003						1,200
Additions						–
At 31 March 2004	–	–	–	–	–	1,200

11 Stocks

	Note	31 March 2004 £ 000	31 March 2003 £ 000
Meteorological equipment		690	722
Reserve equipment		130	323
Consumable stores		54	60
Total stock		874	1,105

12 Debtors

	Note	31 March 2004 £ 000	31 March 2003 £ 000
Trade debtors		22,458	23,211
Other debtors		12,463	935
Prepayments and accrued income		15,268	7,832
Total amounts falling due within one year		50,189	31,978
Other debtors		11,700	–
Total amounts falling due after more than one year		11,700	–
Total debtors		61,889	31,978

13 Analysis of changes in cash at bank and in hand

	Note	31 March 2004 £ 000	31 March 2003 £ 000
Balance at 1 April		356	678
Net cash inflow / (outflow)	20	(56)	(322)
Balance at 31 March		300	356

The Met Office holds four Euro bank accounts, in which there were amounts totalling £636,000 at 31 March 2004 belonging to third parties (31 March 2003 £nil).

Cash surplus to immediate requirements at 31 March 2004 amounted to £18.800 million and is held in short-term interest-bearing accounts (31 March 2003, £20.706 million) with the National Loans Fund.

14 Creditors

Operating expenditure amounts falling due within one year:	Note	31 March 2004 £ 000	31 March 2003 £ 000
Trade creditors		25,653	9,250
Taxation and social security		6,754	5,834
Accruals		15,984	19,908
Deferred Income		13,371	14,298
Obligations under finance leases		7,110	224
Total amounts falling due within one year		68,872	49,514
Obligations under finance leases		14,208	702
Trade creditors		15,314	–
Total amounts falling due after more than one year		29,522	702
Total creditors		98,394	50,216

15 Provisions for liabilities and charges

	Early retirement £ 000	Dilapidations £ 000	Leaseholds £ 000	Relocation £ 000	Total £ 000
Balance at 1 April 2003	2,738	2,360	659	904	6,661
Transferred from Profit and Loss Account	2,232	369	10,017	–	12,618
Unwinding of discount	312	81	94	–	487
Utilised in year	(1,078)	–	(185)	(778)	(2,041)
Released to Profit and Loss Account in year	(164)	(463)	(1,457)	–	(2,084)
Balance at 31 March 2004	4,040	2,347	9,128	126	15,641

Notes

- (i) The Early Retirement Provision represents the pension costs associated with 132 staff who had been offered early retirement as at 31 March 2004 and comprises the full cost of meeting each individual's pension payments to normal retirement age. The gross amount provided for, before discounting, is £4.4m. After discounting at 3.5% a net amount of £4.1m is provided.
- (ii) The Dilapidations Provision relates to contractual future costs of making good leasehold properties when they are vacated. Discounting has been applied where payments are due in more than one year.

- (iii) The Leaseholds Provision is principally in respect of future cost of leasehold properties which became surplus to requirements on relocation to Exeter. The gross amount provided, before discounting, is £10.8m. After discounting at 3.5% a net amount of £9.2m is provided.
- (iv) The Relocation Provision represents non-staff related costs associated with the move from Bracknell to Exeter and has not been discounted as it is all expected to be expensed within one year.

The commitments provided for fall due in the following periods:

	Early retirement £ 000	Dilapidations £ 000	Leaseholds £ 000	Relocation £ 000	Total £ 000
Amounts payable within:					
Under one year	1,321	20	1,519	126	2,986
One to five years	2,346	1,142	4,922	–	8,410
Over five years	373	1,185	2,687	–	4,245
Total	4,040	2,347	9,128	126	15,641

16 Revaluation Reserve

	31 March 2004		31 March 2003	
	£ 000	£ 000	£ 000	£ 000
Revaluation Reserve at 1 April		10,369		10,213
Revaluation of satellite assets	1,495		855	
Revaluation of land, buildings, plant and equipment	4,691		146	
Transfer to General Reserve	(748)		(845)	
		5,438		156
Revaluation Reserve at 31 March		15,807		10,369

17 General Reserve

	31 March 2004 £ 000	31 March 2003 £ 000
General Reserve at 1 April	90,262	96,768
Transfer from Revaluation Reserve	748	845
Retained profit/(loss)	1,891	(7,351)
General Reserve at 31 March	92,901	90,262

18 Obligations under finance leases

	2003/4 £ 000	2002/3 £ 000
Repayable:		
After five years	–	–
Between two and five years	7,083	464
Between one and two years	7,125	238
Falling due after more than one year	14,208	702
Falling due within one year	7,110	224
Total	21,318	926

The total obligation at 31 March 2004 relates to a supercomputer and general purpose computing service equipment, each of which is held under a finance lease at implicit lease interest rates of nil% and 6.25%, respectively. The obligation at 31 March 2003 related to general purpose computing service equipment only.

19 Related parties

The Ministry of Defence (MoD) is regarded as a related party. During the year, the Met Office had material transactions with this Department and with other entities for which MoD is regarded as the parent department. In addition, the Met Office had material transactions with a number of other public bodies, Government departments and their agencies, principally the Civil Aviation Authority, the Department for Transport, Local Government and the Regions, the Home Office and the Department for Environment, Food and Rural Affairs. None of the Met Office Board members, key managerial staff or other related parties undertook any material transactions with the Met Office during the year.

Joint venture with weatherXchange Ltd

Met Office Directors P Mabe (appointed prior to 1 April 2002) and R Hunt (appointed 28 June 2002) and senior manager P Hardaker were Directors of weatherXchange Ltd at 31 March 2004. P Ewins was appointed as non-voting Chairman on 26 July 2002.

20 Cash Flow Statement

a) Gross cash flows	31 March 2004		31 March 2003	
	£ 000	£ 000	£ 000	£ 000
Payments for exceptional items				
Early retirement	(4,056)			
Leaseholds	(657)			
		(4,713)		
Returns on investments and servicing of finance				
Interest received	703		858	
Interest paid	(612)		(55)	
Interest element of finance lease rentals	(47)		–	
		44		803
Capital expenditure				
Payments to acquire satellite assets	–		(229)	
Payments to acquire plant and machinery, land and buildings	(25,404)		(37,069)	
Receipts from/(costs of) sales of tangible fixed assets	4,697		1	
		(20,707)		(37,297)
(Acquisitions)/Disposals				
Investment in Joint Venture	–		(700)	
		–		(700)
Management of liquid resources				
Net receipts from National Loans Fund deposit account	1,906		12,494	
		1,906		12,494
Financing				
Finance lease	(224)		926	
		(224)		926

b) Analysis of changes in net funds

	At 1 April 2003 £ 000	Cash flows £ 000	Other changes £ 000	At 31 March 2004 £ 000
Cash at bank and in hand	356	(56)	–	300
Cash on deposit	20,706	(1,906)	–	18,800
Total	21,062	(1,962)	–	19,100
Finance lease obligations	(926)	224	(20,616)	(21,318)
Debt due within one year	–	–	–	–
Debt due after one year	–	–	–	–
Total	20,136	(1,738)	(20,616)	(2,218)

21 Operating leases

	Land and Buildings		Vehicles and aircraft	
	2003/4 £ 000	2002/3 £ 000	2003/4 £ 000	2002/3 £ 000
Annual commitments are as follows:				
Leases expiring within:				
Under one year	160	49	73	86
One to five years	705	126	934	1,145
Over five years	1,122	1,742	–	–
Total	1,987	1,917	1,007	1,231

22 Capital commitments

	2003/4 £ 000	2002/3 £ 000
Contracted for but not provided for:		
Relocation	–	21,066
Other (including supercomputer lease rental payments)	21,912	20,955
Contribution for Satellite Programme	7,296	3,618
Total	29,208	45,639

The commitment for the Satellite Programme represents the unpaid portion of the UK approved contribution to EUMETSAT programmes for the current calendar year. Future payments are subject to annual approval by the EUMETSAT Council.

A finance lease to provide a new supercomputer was signed during 2002/3. The first of 12 quarterly fixed lease rentals totalling £20.6m (included above) was paid during April 2004.

23 Losses and special payments

There was a cost of £8,667,000 in respect of provisions relating to rents and other costs of leasehold properties which were non-operational at 31 March 2004. (31 March 2003, £129,000).

24 Derivatives

The Met Office makes significant foreign currency payments for subscriptions and contributions to international meteorological organisations. These costs are recovered from customers of Core services on fixed-price contracts. To manage the risk of currency movements, the Met Office has a policy of buying forward foreign currency.

Five-year financial summary

	2003/4 £ 000	2002/3 £ 000	2001/2 £ 000	2000/1 £ 000	1999/00 £ 000
Profit and Loss Account					
Turnover	160,775	157,398	154,759	154,413	151,013
Gross profit/(loss)	29,279	29,634	31,803	31,762	32,281
Operating profit/(loss)	(9,207)	(5,058)	3,378	4,021	8,453
Retained profit/(loss)	1,891	(7,351)	5,404	6,155	10,019
Capital expenditure					
Tangible fixed assets additions	57,600	48,856	47,846	14,266	24,847
Balance Sheet					
Fixed assets	199,747	162,230	134,341	104,151	104,369
Net current assets	1,291	4,631	33,718	57,736	50,127
Non-current assets	11,700	–	–	–	–
Non-current liabilities	45,163	7,363	2,211	2,710	1,376
Number of employees					
Average for year	1,829	2,097	2,076	2,177	2,231

Appendices

External Board members

Clay Brendish CBE

Clay Brendish CBE has been non-executive Chairman of Beacon Investment Fund since 1995 and of Echo Research Limited since July 2003. He is a trustee of Economist Newspapers Limited and of the Foundation for Liver Research. He became a council member of the City University of London in July 2000. Clay's other non-executive directorships are of British Telecommunications plc, Elexon Limited, the Defence Logistics Organisation (DLO), Herald Investment Trust plc, and the Defence Communication Services Agency (DCSA) Owners Advisory Board.

James May

James May was Director-General of the UK Offshore Operators Association, the industry association of the UK's oil and gas industry, from 1997 to 2003. Previously he had been Director-General of the British Retail Consortium from 1989. He has also worked for the National Farmers' Union, the United Nations Environment Programme and the WWF, and was called to the Bar in 1975. He currently also serves as Chairman of the Land Command Audit Committee and as a member of the HSE Open Government Complaints Panel, as well as sitting on the Met Office Audit Committee.

Brian Hoskins

Brian Hoskins has been at the Meteorology Department in the University of Reading since 1973, as a post-doctoral, reader, professor (including six years as head of department) and, since 2001, Royal Society Research Professor. His research area is the understanding of atmospheric motion from frontal to planetary scales. His current roles include Vice-Chair of the Joint Scientific Committee of the World Climate Research Programme, Member of the Royal Commission on Environmental Pollution, and Chair of the Royal Society Global Environmental Research Committee. He has been on Met Office scientific advisory committees continuously for more than 25 years and has chaired the Met Office Scientific Advisory Committee since it started eight years ago.

Anabel Gammidge

Anabel Gammidge was one of the founders of the company Border Wind that installed the first semi-offshore wind farm at Blyth in Northumberland. This company was purchased by AMEC in 2000 and has installed approximately 40 MW of wind turbines to date, including the first UK offshore turbines. She joined the Meteorological Committee in 1994 and became an external member of the Met Office Board in 2000.

Keeping you informed

While our *Annual Report and Accounts* is produced primarily for our owners, the Ministry of Defence and Parliament, we hope it will be of interest to all our customers in the world of business, the public sector and indeed to the general public as well.

This document is supported by an additional publication, *Environmental Prediction: Science and Technology in the Met Office*, which gives an overview of some of the most important science and research that is taking place at the Met Office. For a copy, please contact our Customer Centre on tel: +44 (0)1392 885680. Or visit our web site at www.metoffice.gov.uk, where both documents can be downloaded in PDF format.

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